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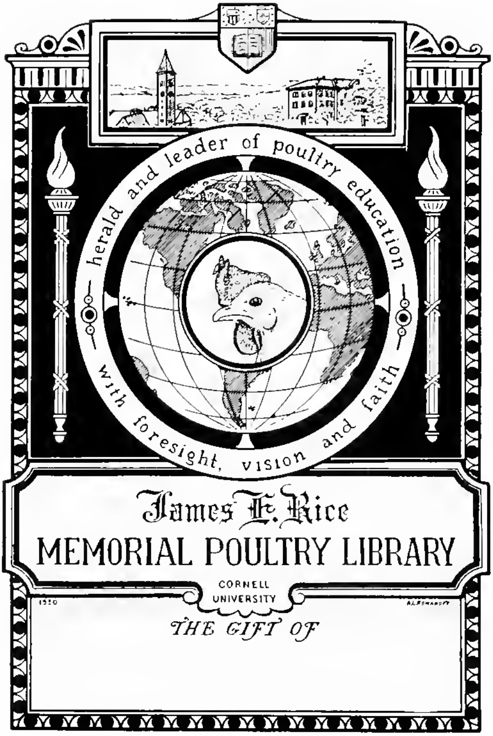

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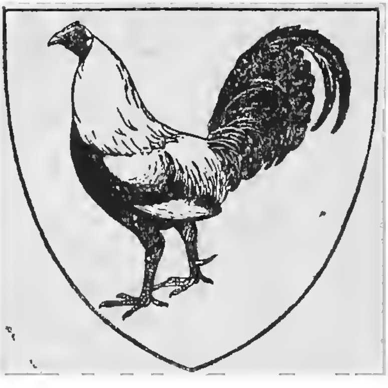

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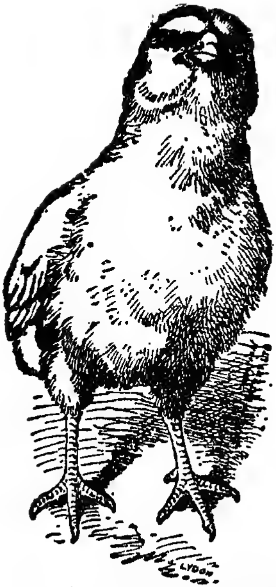

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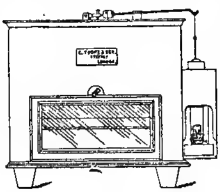

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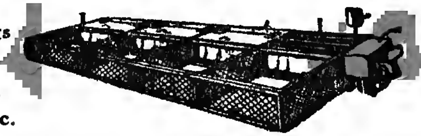

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CONTENTS.

I. INTRODUCTION.

Antiquity of Fattening, 1
Regular Supply Required, 2
£ s. d. of Fattening, 3
Extension of Industry, 4
Market Demands, 4
South-Eastern England, 5
Opportunities Elsewhere, 6
Amount of Trade, 6
Average Values, 7
Railway Traffic, 8
Better Prices, 9
What is Needed, 10

II. BREEDS AND CROSSES.

Choice of Breed, 11
Colour of Flesh and Skin, 12
Shape and Size, 13
Weight of Bone, 13
Qualities of Breeds, 14
Dorkings, 15
Sussex Fowls, 16
Indian Game-Fowls, 17
Game-Fowls, 17
Orpingtons, 17
La Flèche, 18
Bresse Fowls, 18
The Crève-Cœur, 19
Faverolles, 19
The Houdan, 19
Malines, 20
The Langshan, 20
Plymouth Rocks, 20
Wyandottes, 21
Crosses for Meat, 21

III. HATCHING AND REARING.

Collection of Birds, 24
Higgler's Cart in Sussex, 24
French Methods, 25
Broody Hens, 26
Incubators, 26
Places for Incubators, 27
Rearing the Chickens, 27
Brooder Houses, 28
Brooders, 30

IV. SHEDS AND PENS.

Use of Sheds, 31
Cages Employed, 32
Single Compartment Cages, 33
Use of Outside Cages, 34
Examples, 35
French Fattening-Sheds, 36

V. POULTRY-FATTENING IN ENGLAND.

Sussex Fattening, 37
The Sussex Higgler, 38
Ground Oats the Staple Food, 38
Trough Feeding, 39
Half-Fatted Chickens, 40
Cramming, 41
Cramming Machines, 41
Results, 43
Why Fatteners Do Not Rear, 44
Cold Storage, 46

VI. FATTENING FOWLS IN FRANCE.

Woman's Work, 46
Fattening General, 47
Not a Separate Industry, 48
In the Bresse District, 48
Capons and Poulardes, 49
Grades in France, 50
Methods of Feeding, 50
Foods Employed, 53

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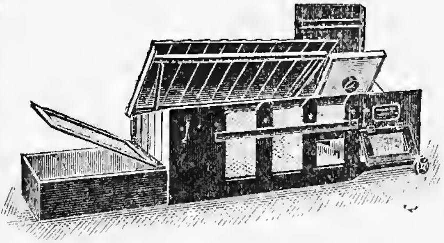

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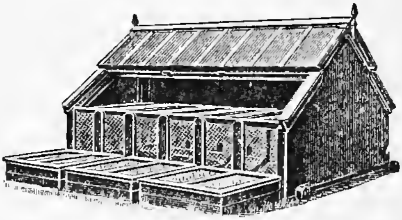

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VII. POULTRY-FATTENING IN OTHER COUNTRIES.

Belgium, 54
The Sheds, 54
No Cramming, 55
Other European Countries, 56
Austria, 56
Hungary, 57
Russia, 57
Canada and the United States, 58
South Shore Roasters, 58
Australia, 59

VIII. KILLING AND SHAPING.

Killing and Plucking, 60
Objectionable Methods, 61
Paletting, 61
Shaping, 62
Method of Shaping, 63
French Shaping, 64
La Flèche Method, 64
Bresse Method, 65
Stubbing, 65

IX. MILK CHICKENS AND BROILERS.

Milk Chickens, 66
Weights, 67
Demand, 67
Suitable Breeds, 68
Feeding, 70
Extent of Trade, 70
Preparation, 71
Is it Profitable ? 71
Squab-Broilers, 72
Rearing the Squabs, 73

X. FATTENING DUCKS.

Duckers in Buckinghamshire, 74
An Industry for Small Holders, 75
The Duckling Season, 7
Provision for Rearing, 76
Eggs for Hatching, 76
Feeding, 77
Diseases, 78
Age for Killing, 78
Duck Farming, 79
35,000 Ducks, 79
Rearing on a Large Scale, 80
American Methods, 81

XI. FATTENING GEESE.

Season of Demand, 82
Geese on Farms, 82
Rearing, 83
Killing and Plucking, 83
Fattening Geese in France, 84

XII. FATTENING TURKEYS AND GUINEA-FOWLS.

Prices of Turkeys at Christmas, 86
Breeds, 87
East Anglian Turkeys, 87
The Rearing Period, 87
Fattening Turkeys, 88
French System, 89
Killing Turkeys, 90
Guinea-Fowls, 90

XIII. MARKETING TABLE-POULTRY.

Organisation of the Trade, 91
The Middleman and His Place, 92
What is Required, 93
Trade Centres, 93
When in Demand, 95
Singeing, 95
Packing, 95
Chilling and Grading, 96
Tinned Chicken, 96
Dressing and Trussing, 97

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ILLUSTRATIONS.

PLATE I. IRISH FOWLS AT A SUSSEX STATION ... *frontispiece*
FIG. I. ANCIENT EGYPTIAN FATTENING GEESE ... *page* 1
PLATE II. HIGGLER'S CART IN SUSSEX ... ... *facing page* 24
" III. OUTSIDE PENS IN AN ORCHARD ... " " 25
" IV. FATTENING SHED AT BUXTED, SUSSEX " " 32
" V. INTERIOR OF DO. AT LIVERPOOL ... " " 33
" VI. INTERIOR OF DO. ... ... " " 40
" VII. SUSSEX CRAMMER ... ... " " 41
FIG. II. HEARSON CRAMMER ... ... *page* 42
" III. FUNNEL FOR FATTENING ... ... " 52
PLATE VIII. CRAMMING BY MOUTH ... ... *facing page* 60
" IX. KILLING A FOWL ... ... " " 61
FIG. IV. SHAPING-BOARD ... ... *page* 62
PLATE X. FOWLS IN SHAPING-BOARD ... ... *facing page* 72
PLATE XI. LA FLECHE DEAD FOWLS ... ... " " 73
PLATE XII. BUFF ORPINGTON DEAD FOWLS ... " " 80
" XIII. FATTENING-PENS FOR DUCKS ... " " 81
" XIV. AMERICAN DUCK PLANT ... ... " " 88
" XV. EAST ANGLIAN TURKEYS ... ... " " 89

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PREFACE.

THE Poultry Industry has made very marked progress since this little work was first published in 1896. Production has increased to a considerable extent. More and better fowls are kept throughout the United Kingdom. Our markets, at any rate in the residential and manufacturing districts, are supplied with a higher grade of fowls than ever before. It is evident, however, that progression is more marked in egg-production than in table poultry. Of the various sections of the country, Ireland has made the greatest advance, sending poultry alive and dead to Britain in value almost as much as all the rest of the world—namely, in 1908 to the amount of nearly £800,000. The declared values of foreign and colonial supplies were in 1909, £920,699, and are increasing year by year. The reason for this slower growth in production of table poultry is probably due to the difficulties which fattening establishments meet with in obtaining a sufficient supply of suitable birds. Several promising ventures have had to be given up on that accouut. Heavy egg-producing races are not capable of making first-class table chickens.

Of inferior grades the market is fairly, though not sufficiently, supplied. But if the home producer desires to dominate this trade he must provide the finest qualities, Then he need fear no competition. That, however, is not all. The birds must be properly prepared and finished.

Further, the shortage of native turkeys at Christmas has increased. We wish to see our farmers take advantage of the opportunity afforded to them. There is money in it for them, as many have proved.

In response, therefore, to many inquiries, I have revised this work on "Poultry Fattening," which has been out of print for some years, and now offer it in a different form.

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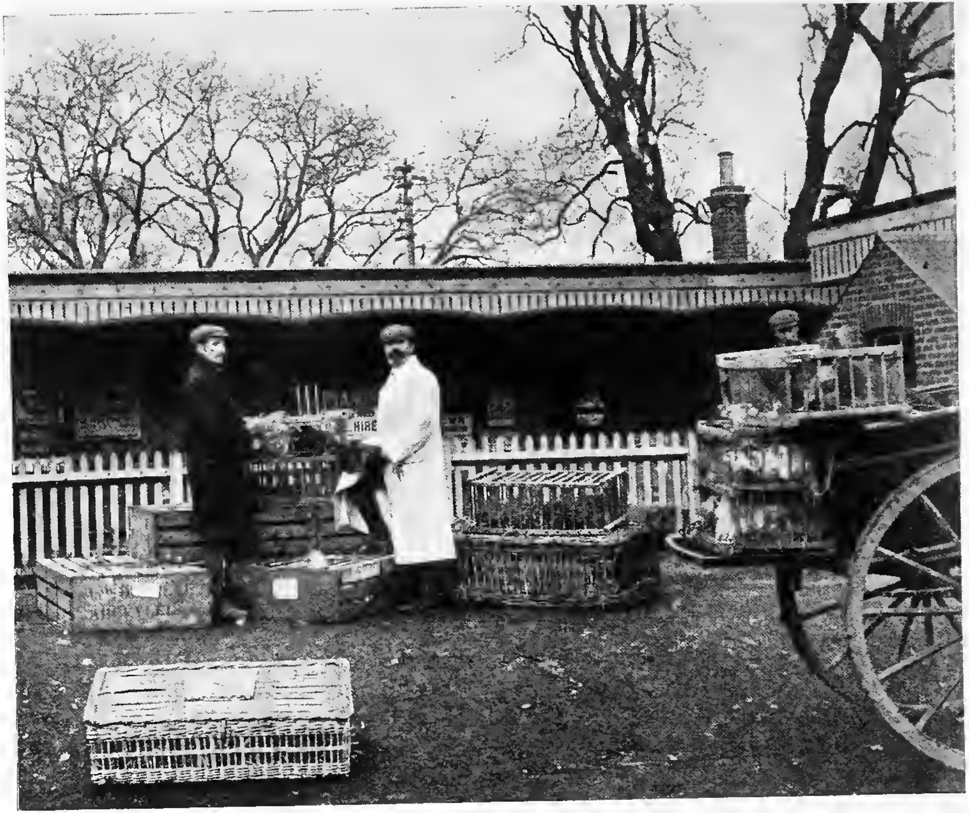

PLATE I.—IRISH FOWLS AT A SUSSEX STATION.

Frontispiece.]

POULTRY-FATTENING.

CHAPTER I.

INTRODUCTION.

Antiquity of Fattening—Regular Supply Required—£ s. d. of Fattening—Extension of Industry—Market Demands—South-Eastern England—Opportunities Elsewhere—Amount of Trade—Average Values—Railway Traffic—Better Prices—What is Needed.

FOR a long period of time, among the dainties or finer dishes for the table, fowls of various kinds have been recognised as holding a leading place. Even as far back as the days of Solomon we find in Scripture references to "fatted fowls," though whether these words apply to ordinary poultry is a point which has led to some discussion. We may, however, leave this controversial subject on one side, for there can be no question that 4,000 years ago the ancient Egyptians crammed their geese, and probably were the originators of the cramming system, as they appear to have been in respect to artificial incubation. The drawing given above (Fig. 1), copied from one of the tablets in the Pyramid of Sakkara, represents a man engaged in the work of cramming geese by means of pâtons, or boluses, of food,

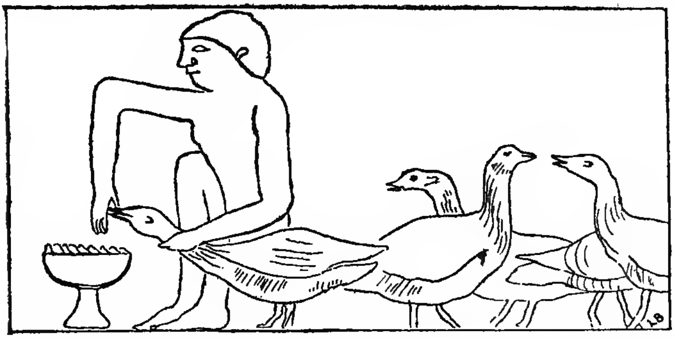

Fig. 1.—ANCIENT EGYPTIAN FATTENING GEESE.

practically identical with the system adopted in some parts of France to-day. References could be given innumerable proving that this system is by no means new, but we need not dwell on them at any length. It is enough to show that the principle involved is recognised in nearly all branches of animal and plant life, utilised as food for man, and it is, as a matter of fact, as sensible to kill lean poultry as it would be to slaughter lean cattle or sheep. Even those who state their preference for taking a bird out of the farmyard, killing and eating it without any preparation, believe in feeding off cattle, sheep, and pigs, and would never think of selling to the butcher these animals in store condition. We simply ask them, therefore, to apply the same principles to poultry as to larger stock. It will be our object in this work to explain as fully as possible the methods adopted both at home and abroad, in the hope that the knowledge thus imparted may lead to an extension of the system.

REGULAR SUPPLY REQUIRED.

Under natural conditions we should have a supply of fat poultry for use on the table during a very limited period of the year, as is the case with game. This would be with all classes in the late summer and early autumn, when an abundance of food brings the bodies of animals and birds into plump condition. The primary reason why Game are killed from August onwards is that they then have the maximum of flesh, and it is of a much better quality than at any other season. Until fowls were brought under domestication, and subjected to special methods of feeding to widen the period of supply, the same would apply to the species we designate under the generic name of Poultry. Mother Nature provides in a wonderful manner for the needs of her creatures. By an abundance of food in the late summer and early autumn the muscles upon the body are enlarged due to an increase of fat in order to ensure a reserve of combustible materials during the colder months of the year, when food is scarce and the demand upon the supply of heat force is increased. Gradually the oil in the tissues is consumed, and thus by the following spring the body is in lean condition, by which time the muscles are hard, less digestible, and lacking in flavour, as well as reduced in bulk. The requirements of our vast populations demand that supply shall be extended, and hence the adoption of what is known as the fattening system with the object of producing at other than the ordinary season of the year the same condition of body as would otherwise be obtainable for but a few weeks. To effect that purpose special feeding is adopted with all classes of stock.

£ S. D. OF FATTENING.

At the outset it will be well to inquire what are the direct results of fattening fowls, and, as the matter must necessarily be one of £ s. d., how far success can be measured between those who fatten and those who do not adopt this system. Taking the London and Paris markets, which are but examples of others, we find that those fowls which command the best prices and are in the greatest demand have been fatted or fed up. It may be well, however, to discount objections by stating that the term "fatted" is not a good word to describe the system. We do not mean that the fowls should be covered with a large quantity of oily fat, but really that the flesh carried upon the body shall be increased in quantity, and softened, or, to use a better term, ripened.

The difference between a well-fed table fowl and one which has not been subjected to this process is evident, and especially to those who have inquired into the system. If we take the prices realised by fowls, we find that those coming from districts where the fattening system is in vogue are much higher than when sent in a lean condition, and in accordance with the completeness of the process so are the results attained. For instance, in the spring of the year the wholesale value of fowls of the ordinary type will range from 2s. 6d. to 4s. 6d. each, whereas well-fed Surrey birds will bring from 5s. 6d. to 7s., and even more, per specimen. There can be no doubt that there is an abundance of room for the best qualities. Competition is greatest in every branch of industry amongst the ordinary classes, while those which are first-rate in quality will readily sell, and at greatly enhanced prices. Many figures could be given as to returns obtained in this way both at home and abroad, and it is not too much to say that those who produce the best can almost always find a market for their produce at remunerative prices.

EXTENSION OF INDUSTRY.

Until a recent period the process of fattening fowls has been almost entirely confined to the counties of Surrey, Sussex, and a part of Kent, in England, with a result that the table poultry trade has largely, so far as the best qualities are concerned, passed into the hands of those counties which supply the finest specimens for our home market. Since this work was first published there has been a considerable extension of fattening not only in the counties named but in other parts of the kingdom. Proof is abundant that fowls can be fatted almost anywhere, if the proper system is adopted. The greatest difficulty in commencing such an enterprise is in securing a supply of suitable birds. Strange to say, the largest establishment in this country is at Liverpool. In Ireland much is now being done in this way, promising greatly to extend in the future, and in Belgium, Austria and even Russia, the system has been introduced. Both in Canada and the United States the fattening of fowls is a growing industry.

MARKET DEMANDS.

Some time ago we undertook an exhaustive inquiry over the whole of Great Britain as to the supplies of poultry. As a result it was found that London is the great centre of the trade, at any rate for the higher-class qualities, though Liverpool supplies a large quantity of good Irish poultry, principally from the Wexford district, where fattening is carried on to some extent, and might be enormously developed. The result of this inquiry may be summarised as showing that in order to obtain a regular supply traders are compelled to depend chiefly upon the London market. These observations extended from Aberdeen to Plymouth. For instance, one dealer at Bournemouth told us that he buys all his poultry without exception from London, having tried several times to obtain local supplies, but the result was never satisfactory, as they were poor and irregular, and he has been compelled to look entirely to the metropolis. Now he can order all he requires by the evening's post, and they are delivered in abundance of time for dinner the following day. Local supplies are not only inferior in quality, but cannot be relied upon, and that would be destructive to his trade. In Leamington a similar statement was made, and in Manchester, which is one of our best provincial markets, whilst they have good birds from Ireland, and obtain the greater part of their supplies from that country, still most of their best chickens have until recently come from London. A further example will suffice as evidence of what is stated here—namely, that when in Aberdeen some time ago we learnt that one of the leading hotels there used 100 chickens per week, all of which were obtained from London. This may be exceptional, but it is undoubtedly a case which shows that, although the North-East of Scotland produces some of the best Dorkings we have in the country, yet so irregular is the supply and so uncertain the quality, they find it pays them to bring their birds a distance of 520 miles.

SOUTH-EASTERN ENGLAND.

It might naturally be assumed from these facts that there are special conditions giving the South-Eastern district of England an advantage over other parts of the country. It would be folly to question that undoubtedly the counties of Surrey, Sussex, and Kent are well suited to this work, but they have no exceptional advantages over other districts which can be named. Probably the origin of the concentration there is explainable by the class of fowl kept, and by contiguity to the metropolis, which at one period, ere the railway era, was a very important matter, but in these days, when distance is to a great extent annihilated, the special advantages do not apply. For a very long time—longer, in fact, than we call recall—the best class of poultry for table purposes has been bred more especially in Sussex and West Kent, and thus we see an explanation as to the development of this industry. Or, as stated in Mr. R. H. Rew's report, to be again noted: "It was suggested to me that the existence of a native kind of fowls of superior excellence for the table, and having an accommodating propensity to sit early and often, led the inhabitants, on recognising their good qualities, to devote special attention to the rearing and fattening of them. I am bound to say that, apart from actual evidence, it seems quite as probable that the industry developed the fowls as that the fowls originated the industry. In other words, the undoubted adaptability of the fowls to its particular ends may be the effect and not the cause of the attention given to their rearing and breeding."

OPPORTUNITIES ELSEWHERE.

Everyone who has studied the development of various pursuits knows how great is the tendency towards concentration, and when combined with an absolute neglect of poultry-keeping elsewhere, with the feeling that it is an unprofitable pursuit, far beneath the notice of agriculturists, the trade naturally passed into a comparatively limited area. But when we look at the matter a little more closely, what do we find? That Dorking and other meat-producing races can be bred as successfully in the north of Scotland, in the north of Ireland, in Cumberland and Westmorland, as in Surrey. Given that fact, the question of fattening is by no means difficult. We can by proper buildings and other arrangements overcome any atmospheric influences there may be so long as the birds themselves are produced. If Aberdeen can produce some of the best beef that is to be found anywhere, it is equally suitable for the production of table poultry, and thus the question of latitude is by no means as important as many people imagine.

AMOUNT OF TRADE.

Referring again to the Surrey, Kent, and Sussex districts, the well-known firm of Messrs. Brooke Bros., of Smithfield Market, London, have given us the following figures, the total amount paid by them to senders in the counties of Surrey, Kent, and Sussex alone in a recent year:

	£	s.	d.
January	1,230	0	0
February	1,250	0	0
March	1,450	0	0
April...	1,510	0	0
May	1,600	0	0
June...	1,650	0	0
July	2,160	0	0
August	1,680	0	0
September	1,320	0	0
October	1,560	0	0
November	1,810	0	0
December	2,000	0	0
	£19,220	0	0

The books of Messrs. C. E. Brooke and Sons, of 39, Leadenhall Market, show approximately the same amount.

As the average value is about 3s. 4d. per bird, it will be seen that these two firms sold upwards of 230,000 birds from the three counties named.

AVERAGE VALUES.

The same firm has furnished us with the average values of Sussex poultry sold by them during one complete year :

	s.	d.		s.	d.
January	3	6			
February	3	6			
March	3	9			
April	4	6	to	5	0
May	4	3	„	4	9
June...	3	9			
July	2	9			
August	2	6			
September	2	9			
October	2	6			
November	2	9			
December	3	0			

These figures show that the average for the first six months was 4s. 1d. per head; for the second six months 2s. 8d. per head; and for the entire year just over 3s. 4d. per head. The above figures, however, represent all qualities, and it may be well to quote returns given by Mr. Rew, as to the prices obtained by " a large rearer and fattener who aims at maintaining a high reputation for his chickens, and who, therefore, probably secured rather more than the average prices at market ":—

	s.	d.		s.	d.	
January	3	0	to	5	0	
February	3	0	„	5	0	
March	4	0	„	5	6	
April	5	0	„	6	0	
May	5	0	„	6	6	(10 sold at 7s.)
June	4	0	„	6	0	
July	4	0	„	5	6	
August	2	6	„	4	0	
September	3	0	„	3	9	
October	3	0	„	3	6	
November	3	0	„	3	6	
December	3	0	„	4	9	

It will be seen that the averages here represented are considerably in excess of those given by the Messrs. Brooke Bros., and may be taken as representing the best qualities. If we take the mean value, it is to find that the average for the first six months was 4s. 10d. per head; for the second six months 3s. 7½d. per head; and for the entire year nearly 4s. 3d. per head.

RAILWAY TRAFFIC.

This, of course, only represents a portion of the trade, and we may be permitted to quote from returns given by two of our great Southern Railway companies. By the courtesy of the London, Brighton and South Coast Railway we are able to give the figures showing the extent of traffic in dead poultry on their system. The following figures are for twelve months:—

By Goods Train.		By Passenger Train.		Total.
tons.		tons.		tons.
2,021	... ...	495	... ...	2,516

The South-Eastern and Chatham Company inform us that, from two of their leading stations, nearly 34 tons were forwarded in the month of August, principally to the seaside resorts on their line. From which it is probable that the total annual shipments will be 400 tons.

Taking the former alone, if the average weight of each bird were 4lb., and probably, taking one season with another, this would be fair, that represents nearly one and a half million fowls (1,408,960), truly a marvellous result. What the total extent of the Sussex trade in poultry is we have not been able definitely to obtain, but, taking the number given as produced in Sussex, will not overstate the case. The salesmen referred to already inform us that their average for twelve months was 3s. 4d. Allowing the odd fourpence for carriage, commission, and expenses (which is above the actual cost), at 3s. each, this would give us the total of £225,000 for the entire county, a considerable increase within recent years. We are certain those who know will realise that this is not overstating the case, but rather the reverse. In the Uckfield district the chief villages at which cramming takes place are Hurstwood, Hadlow Down, Buxted, Framfield, Barnett Wood, Eason Green, and Black Boys, and Messrs. Bourner and Co., of Uckfield, who are the carriers thence, inform us that in 1894 they took from these villages, for the rail, 313 tons 16cwt. 2qr. 13lb. of chickens, or 117,163 birds.

BETTER PRICES.

There is another most important fact which must be stated here—namely, that the commencement of fattening establishments in different parts of the country would have a most beneficial influence upon ordinary poultry keepers, creating a great demand for young birds. It is no uncommon thing in the South-Eastern district for the higglers to pay up to 3s. 6d. for early-hatched, well-grown chickens, of eight or ten weeks old, and so enormous is the demand for birds during the spring of the year that in 1905 893 tons (about 625,000) of Irish chickens were brought over, at a cost of about 4½d. each for carriage, to be fatted and sent out. The complaint in many parts of the country is that chickens cannot be sold at remunerative prices, and so long as no effort is put forth to properly prepare them for market this state of things will continue. We see no reason why almost every county in Britain should not have fattening establishments, thus supplying its own needs.

The facts show that there is an opportunity for development of poultry fattening, and consequently of poultry rearing, in Britain, thus obviating the need for those vast quantities of chickens, geese, and turkeys which are imported from France, and from such widely separated countries as Russia and Canada. Few people realise the extent to which we are dependent upon foreign supplies of both eggs and poultry. Statistics can be found in the author's work on "Poultry Keeping as an Industry for Farmers and Cottagers," and need not here be repeated.

The most striking fact in this connection is the predominance of London markets in supplying the best qualities. London is the medium through which passes the produce from the fattening establishments of Sussex, Surrey, and Kent, and the duck farms of Buckinghamshire and Bedfordshire, whence are sent forth the best fatted poultry and ducks. So long as fattening is practically confined to one section of the country this state of things will continue. That there are many parts of Britain where fowls could be, and it may be are, produced as good as in Sussex can scarcely be questioned, but the specimens have not been fatted or finished off. We need, therefore, to extend the system elsewhere, and hope to see the day when a county without fattening establishments will be the exception, instead of the rule as at present. And we believe traders in all parts of the country would lend their powerful support to the accomplishment of this end. A movement has already taken place in this direction.

The tendency of any business is ever towards concentration, arbitrarily so, and we need at intervals to break it up. Table poultry can be produced in Cumberland equally with Sussex, and ducklings in Yorkshire as well as in Buckinghamshire. Not climate, not soil, not other conditions, so much as brains and energy command success in poultry-keeping. The spread of fattening establishments would increase demand for labour, would enable chicken raisers to obtain better prices for their birds, make a local demand for grain and milk, and supply local needs, saving railway carriage and economising expenditure.

WHAT IS NEEDED.

There are people, however, who object to the fattening system. They fail to understand it. As we have said before, is it not as unreasonable to kill lean poultry as it would be to slaughter lean stock? One is on all fours with the other. Of course, to succeed we should need to improve the breeds of poultry, selecting those with definite table properties, to breed early, to aim for good quality, to study the markets in order to concentrate our output during the time when rates rule highest. This latter point seems to be ignored by ordinary poultry-keepers. Remember that when the game comes in down go the prices for poultry. There must also be proper fattening and preparation. It is not what we like, but what our customers want and for which they are willing to pay. We should be glad to see here the same universal skill in fattening and dressing poultry as is found in some parts of France, where every farmer's wife understands the business, and for quality of fowls marketed they beat the professional fatteners completely. But as a first step we must look to fattening establishments. It is satisfactory to note that since this work was first published there has been a remarkable advance in the quality of British and Irish table poultry, at any rate in London and a few other centres, but much remains to be done.

How are the changes here indicated to be brought about? Of course, individual effort will be a powerful factor. The example of one success is a great stimulus towards the development of any industry. But we need some means of arousing thought and inquiry as precursors of action. Something has already been done. The work is necessarily slow, but perhaps none the less sure on that account. A movement like this does not enable one man to make a fortune, but it may help a thousand men and women to add to their incomes a sum which is of distinct benefit to them, and thus be of greater general good.

One important factor must not be forgotten—namely, that production of the highest qualities of table chickens is only possible where the soil is favourable. Heavy clay, or cold, damp land is useless for this purpose, as the birds grow slowly and do not produce the delicacy of flesh required. Good rich land, dry and warm, more especially on sunny slopes, should be selected, and there the best chickens will be reared. In the author's work on "Poultry Keeping as an Industry for Farmers and Cottagers" this question is fully dealt with.

CHAPTER II.

BREEDS AND CROSSES.

Choice of Breed—Colour of Flesh and Skin—Shape and Size—Weight of Bone—Qualities of Breeds—Dorkings—Sussex Fowls—Indian Game—Game Fowls—Orpingtons—La Flèche—Bresse Fowls—The Crève-Cœur—Faverolles—The Houdan—Malines—The Langshan—Plymouth Rocks—Wyandottes—Crosses for Meat.

In making choice of any animal for domestic purposes a most important, and, in fact, a necessary point is to consider the structure of the animal in relation to the work which it has to perform. It would be suicidal on the part of a horse buyer if he were simply attracted by colour, for he must primarily examine the animal to see whether it is built upon lines enabling it to accomplish the work required from it. The same is equally true in the case of cows, and this principle ought to be equally laid down for the guidance of all poultry-keepers. Fortunately we can divide our different races of poultry into distinct classes, according to their economic qualities, which is at once an important guide in the selection of breeds. Our first point in the choice of stock for producing table poultry is that the bird shall be built in such a manner as to carry a large quantity of flesh in the right place, that it shall have good quality of flesh, be by nature a quick grower, fattening easily, and be sufficiently hardy.

COLOUR OF FLESH AND SKIN.

A further most important matter in the selection of table poultry is as to the colour of the skin and flesh; though this is looked at from different standpoints in America and Europe. For some reason our Transatlantic neighbours have preferred yellow-fleshed fowls, whereas we always look upon those birds carrying the whitest flesh as being the best for table purposes, and there can be no doubt that the breeder of table poultry who desires to attain the best results must keep this question in view. But it is evident that idea is modifying in America, as the white-fleshed races are now regarded with a greater amount of favour. It will be well, however, to give a list of the leading breeds which are suitable for table purposes, showing the colour of their flesh. Fuller details will be found in "Races of Domestic Poultry."

White-fleshed Races: Bresse, Crève-Cœur, Dorking, Du Mans, Faverolles, Game (some varieties), Houdan, La Flèche, Malines, Orpingtons (Buff, White, Spangled), Scotch Grey, Sussex.

Yellow or Cream-fleshed Races: Brahma, Cochin, Dominique, Game (some varieties), Indian (Cornish) Game, Plymouth Rock, Rhode Island Red, Wyandotte.

Grey or Greyish-white-fleshed Races: Langshan, Mantes, Black Orpington.

Here it is desirable to mention that in Britain there has been a strong prejudice in favour of white-legged fowls for table purposes, it being thought that black-legged fowls were not nearly so fine in flesh. Consequently, with the exception of one breed of Old Game fowls, the only variety fitting this notion was the Dorking, with those more recent introductions, the Buff Orpington, the White Orpington and the Faverolle.

Happily the prejudice is dying out, for it has been abundantly proved that two or three French breeds are quite equal to the Dorking in table properties, and there is not one with white legs and feet.

SHAPE AND SIZE.

Another important matter is as to the shape of the birds, and the true ideal in the selection of table poultry is that the fowl shall be long in body or keel, broad in breast (giving it a massive appearance), deep in body, and have large wings. Unless the bird is long in body or keel it is impossible for it to carry the same amount of flesh as would otherwise be the case, because the length of flesh upon the breast is determined by the length of keel. Then, again, unless the bird is broad the breast will not give as many slices as is desirable. Third, a shallow-bodied bird has a shallow keel or breast blade, and therefore the breast muscles will necessarily be relatively thin. The object in recommending large-winged birds as table fowls is because the meat lying upon the breast consists of the muscles which are utilised for working the wings. If the wings are small, the muscles will be relatively small. Nature does not waste her energies, and, as everything produced by her has some definite object, we should acquaint ourselves with her operations. At the risk of being charged with reiteration, it is well to state again what we want to secure the best body: (1) a long body; (2) a broad breast; (3) a deep body; and (4) large wings. These points are carefully regarded in the great poultry districts of France, and in the Bresse country the length of body receives prominent consideration, a short-keeled fowl being looked upon as inferior.

WEIGHT OF BONE.

In making a selection for breeding table poultry we strongly urge that, as far as possible, heavy-legged and heavy-boned fowls shall be avoided, because, as everyone acknowledges, the best part of a fowl is undoubtedly the meat found upon the breast, and it is in this direction that we wish to develop. Large bone does not necessarily mean heavy bone. The Dorking has fairly broad bone, but it is soft and spongy. The legs of a fowl are composed of sinews and veins, which are tougher and have less food value than the breast meat, and we should breed as little for legs as possible. A further point is that all feather-legged birds ought to be avoided for table purposes. These ornamental additions to the legs and feet have to be maintained, which can only be done at the expense of economic qualities. It has been proved again and again that since hock and leg feathers have been so much developed on the Cochin and Brahma, both these breeds have deteriorated in respect to egg and flesh production, and the reason for this change must be obvious to all who have studied the laws of breeding.

A further question is as to the relative weight of meat and bone upon fowls, because in selecting table poultry it is not so much size of frame that we must look to as the amount of actual food thereon. Fortunately we have some tables showing the result of M. Lemoine's observations in this direction, from which it will be seen that the Dorking, the Game, the Houdan, and La Flèche, amongst English and French breeds, give us a relatively larger weight of meat than of bone or offal.

Qualities of Breeds.

The leading varieties of table poultry, regarding them from the higher meat qualities, are:—

First Quality.

Dorking,
Sussex,
Game,
Buff Orpington,
Bresse,
La Flèche,
Crève-Cœur.

Second Quality.

Indian (Cornish) Game,
Malines,
Langshan,
Black Orpington,
Faverolles,
Houdan,
Plymouth Rock,
Wyandotte,

and, with the exception to be afterward noted, table-poultry producers would be wise to confine their attention chiefly to these breeds. We should, however, suggest that the French varieties, Bresse, La Flèche, and Crève-Cœur, need not detain us long, as in the other varieties named we have probably greater strength of constitution, and they are more easily obtained. But we shall briefly refer to these breeds.

DORKINGS.

Of this valuable breed there are four varieties—namely (1) Dark or Coloured Dorking; (2) Silver Grey; (3) White; and (4) Cuckoo. The Dorking is large and deep in body, as will be seen in all varieties, and when viewed sideways forms an almost perfect square when the head, tail, and legs are removed, the chest being well forward. The neck is short and the head medium in size, the legs are clean, and, together with the feet, white in colour, carrying the fifth toe. The Dorking is our oldest pure breed. It has been bred for probably many centuries, and is characterised by wonderful quality and abundance of flesh, this being almost entirely upon the breast. The legs are shortish and have not much muscle. Of the four varieties Darks are the largest and probably have the greatest amount of vigour. Next we should place the Silver Greys, which are rather the finer in bone. It has sometimes been said that the Dorking is delicate, but we think that this statement applies chiefly to it in damp situations, as the breed is able to withstand cold quite easily. Our contention is evidenced by the fact that Dorkings are not only bred in the South of England, but as far North as Banffshire in Scotland, down the East Coast of that country, in the north of Ireland, and on the hill sides of Cumberland and Westmorland. Strange though it may seem, many of the best Dorkings of late years have been bred in Scotland and Ireland. Dorkings grow to a great size, and a dozen pounds is no uncommon weight for an adult cock.

In selecting Dorkings for table purposes, the following points are most important : (1) that the bird shall be large and broad in body, with a good square frame and a straight keel or breast-bone—a weak breast-bone being met with in many families of Dorkings ; (2) that it shall have good flesh qualities; (3) that the legs and feet shall be pure white ; and (4) that the bone shall be soft. This question of bone has been somewhat neglected of late years, probably due to crossing with other breeds in order to obtain size ; but we should urge attention being paid to it. A coarse-boned Dorking is obviously against common sense. We have been glad to see at some of the shows recently held a number of winners exceptionally good in this respect, and hope that breeders will keep the point in view.

SUSSEX FOWLS.

At one time the fowls chiefly found in the Surrey and Sussex districts were much more even in type than is now the case. They were not, however, pure Dorkings, though there was a close affinity between the two, both having white legs and skin, and at once early layers and sitters, the chickens maturing rapidly. These are qualities that must give any breed a striking advantage over others, and for that reason a strong preference is still declared for the older type. In 1903 an attempt was made to revive the old Sussex breed, of which fortunately a few strains remained, and a Club was formed in its interest. The result has been very satisfactory, and a considerable number of breeders are engaged in its improvement. Three varieties are recognised—namely, the Red or Brown, which is chiefly chestnut brown; the Light, in which the plumage is white and black; and the Speckled, in which reddish-brown and black predominate, but many of the feathers are tipped with white. The fowls are not quite so large as the Dorking, but are very deep in body, have shortish legs, and fatten very rapidly, the flesh being of a beautiful white in colour. Of the above varieties the Red and the Speckled are to be preferred.

INDIAN GAME.

The Indian Game might with greater correctness be termed Cornish Game, as it undoubtedly was perfected in the South-West of England. The breed originated in Cornwall, and it has been a most valuable addition to our English poultry. Probably there has been an admixture of Malay blood with the old fighting Game. It is a large, heavy-boned fowl, but carrying a considerable amount of flesh upon the breast, which is good in quality though somewhat hard, and requires to be well hung. The plumage is partridge and very rich. Its legs and skin are yellow, and the legs and neck long, but we should urge that shorter-legged birds be selected for table purposes. For first-class table qualities Indian Game cannot possibly compare with the Dorking, having yellow flesh and legs, and also being much heavier in bone. It is, however, a most valuable breed for crossing with the Dorking, and its hardihood enables this cross to be produced in places where pure Dorkings would be a little tender. Moreover, as a cross generally seems to follow the mother, we mean in respect to colour of flesh and legs, the special Indian Game qualities are not seen so much in the progeny as might have been expected, whilst they make rapid growth and give splendid quality of flesh. We should seek for vigour of body, good size, and well-developed flesh in securing specimens.

GAME FOWLS.

The breeds of poultry coming under this name must be divided into two distinct classes : (1) the Old English type of Game ; (2) the Modern Game. These latter may be dismissed at once as undesirable, in that they are far too much bred for length of neck and legs to be useful for economic purposes. Handsome they undoubtedly are, but lacking in the qualities for which we are seeking. We therefore turn our attention to the old-fashioned type of Game—that is, the fighting cocks of days gone by. These birds are short in the leg, have good square bodies, with beautiful quality of meat. Some have white legs, and these, of course, would be preferred for first-class table quality. There are several colours, and no one can get far wrong—the Black Reds being often preferred, as they are amongst the largest. We have recently noticed, however, a tendency to rather lengthen the leg of these birds, and trust that it will not continue, for to do so will be at the expense of breast qualities, as in the case of Modern Game. Pure-bred Game-fowls are not recommended for marketing purposes. Nothing can be finer for the supply of one's own table, and if this were the object they can be selected without fear. But the flesh is a little too close, hard, and dark for placing upon the market, where something softer is desired. The chief value of the Old English type of Game, as of the Indian Game, is for crossing purposes.

ORPINGTONS.

One of the most useful fowls recently introduced is the Orpington, more especially the Buff variety, which has commanded so much favour both at home and abroad for its sterling economic qualities. Whilst it is a good egg-producer, laying tinted shelled eggs, it has white flesh and white legs and feet. It does not attain the size of the Dorking or Sussex, but fattens well and the flesh is chiefly upon the breast. The race is hardy, thriving well on kindly soil, and the chickens mature in a reasonable time, about 14 weeks, which is satisfactory though not so rapidly as in some other breeds. Whites are also excellent for table purposes, but rather heavier in bone, and are coming more and more into favour. The Black Orpington is a larger bird, but has greyish flesh and skin, and is much heavier than the Buffs in leg meat and coarser in bone, so that it is not suitable for first-class table poultry. Buff Orpingtons are compact, fleshy birds which are quite equal to the requirements of our best markets.

In France the two principal breeds are La Flèche and the Bresse, the former of which is bred in Normandy and the latter in the departments of Ain and Saône-et-Loire, and for second quality the Crevecœur, the Faverolles, and the Houdan.

LA FLÈCHE.

In the La Sarthe district of France are found many of the best breeds of national poultry, and that is the home of this variety, which is the *doyen* of ordinary French table fowls. At the great Paris shows, to La Flèche nearly always falls the Prix d'Honneur, or Champion Prize for fatted fowls. It is a black-plumaged fowl, with great length and massiveness of body, lending itself to early maturity, and giving magnificent quality of flesh with extreme delicacy of skin. It has a neat head, surmounted by a peculiar small-horned comb, and, like the Crève-Cœur, has dark or leaden-coloured legs, which fact shows that the prejudice in favour of white-legged fowls for table purposes has no real basis to warrant it. La Flèche is only a moderate layer, and is pre-eminently bred for its table qualities, more especially for larger winter fowls.

BRESSE FOWLS.

The variety known by this name is regarded as the best of all the French fowls for table purposes. For flavour of meat and tenderness we have never met its equal. It was decidedly in advance of the Dorking, which we had on the table at the same time. Some of this might be due to feeding, for the French fowl had been fed according to Gallic methods, whilst the English fowl was prepared in the way which is usually the case for our home market. The flesh of the former really melted in the mouth, and it was a rare treat. This breed is divided into three varieties—namely, Black, White, and Grey. The last-named, which has really a pencilled marking, is chiefly bred in the department of Bourg, and the first, black in plumage, in the Arrondissement of Louhans. Hens of both these varieties are good layers, and very rarely sit. Eggs from the Blacks are much the larger, weighing nearly two and a half ounces, whilst the eggs of the Greys only weigh about one and three-quarter ounces each.

THE CRÈVE-CŒUR.

These are black fowls, ornamented with a large crest, and are large in size of body. They are not so suited to a moist climate as where the conditions are drier. The chickens grow quickly, and are plump, fattening well, but having a loose skin they do not present so even an appearance as either the Bresse or La Flèche. Whilst they are bred to a considerable extent in one or two districts of Normandy, it is recognised that they are somewhat delicate.

All the breeds named above, with the exception of Indian (Cornish) Game, are regarded as capable of producing first-class table fowls. The following are more suited to a second-class trade :—

FAVEROLLES.

This breed is of recent introduction in France, and was intended to meet the demand for second-class fowls. It is large and deep in body, carrying a fair amount of flesh, which is of good quality, but it is substantial and heavy in bone. It is, however, a quick grower, and has white flesh and skin. It is slightly feathered on the outer sides of the legs and feet. The natural vigour of the Faverolles has won them a good position for farmyard purposes, and they serve a very useful purpose in the production of table chickens, as the meat is soft and tender. There are three colours, namely, Salmon, Light, and Black, the first-named receiving the greatest amount of favour, but in respect to plumage there is considerable divergence.

THE HOUDAN.

Whilst this race is chiefly regarded as an egg-producer, large numbers of chickens are annually reared in

France for the spring markets, owing to its quickness of growth, lightness of bone, and excellent flesh qualities. It is very suitable for *petits poussins* or milk chickens, and its pinky white legs and feet are distinctly in its favour, but when more fully grown it is less plump than is desired by the best traders. For crossing purposes, the Houdan is very valuable, but its use is limited by the fact that it carries a large crest, and thus should not be kept in a moist climate.

MALINES.

The chief table fowl of Belgium is the Malines, which takes its designation from the city of that name, as it is largely bred in the surrounding district. Large in size of body and bone, and by no means rapid in development, it carries more leg-meat than is desired in a first-class fowl, but it fattens well, and the flesh is good in quality. As a winter fowl it is excellent. It is hardy, and that is a great recommendation. There are two leading varieties—namely, Cuckoo and White.

THE LANGSHAN.

Although this race is heavy in bone and carries flesh more upon the thighs than the breast, and is, consequently, one of the general purpose breeds, it has good flesh qualities, as the flavour is excellent and the skin fine and thin. These remarks apply chiefly to the older type of Langshan, those with shorter legs than are now bred for exhibition. It is moderately hardy, but should not be kept in cold, exposed situations or upon very heavy clay land. For crossing purposes it is very useful, but rather where both egg-production and table properties are kept in view than if flesh is the great desideratum. The Black Langshan is most popular.

PLYMOUTH ROCKS.

Essentially a farmer's fowl, by reason of its vigour, activity, adaptability to varied conditions, and excellent laying qualities, the Plymouth Rock has yet considerable value as a table fowl. It is large in size of body, carries a fair amount of flesh upon the breast, whilst full in leg meat is not unduly heavy in that respect, and fattens very well. By reason of its yellow flesh and legs it can never take a high position on European markets, where white flesh is a *sine quâ non* for first-class trade.

But in America yellow or golden flesh has been preferred, though, as we have already noted, change is evident in that direction, and white flesh is increasingly coming into favour. Where colour of meat and legs is unimportant the Rock is one of the best races we have for the supply of second-class poultry, and the size of body is a decided recommendation. This breed can be kept anywhere and on almost any class of soil. There are four varieties—namely, Barred, White, Black, and Buff, of which the Barred and the Black are preferred for table chickens.

WYANDOTTES.

America has also given us this breed, and, as might be expected with the preference hitherto manifested for yellow flesh and legs, it follows the Plymouth Rock in that respect, but is not quite so deep in colour. Birds of this race are very hardy and can be kept on almost any kind of soil. The chickens grow well, but not quickly, and hence they are better when of a mature age. When in lean condition Wyandottes do not carry much flesh, but they fatten better than is generally supposed. In all there are eight varieties, of which the Whites are best for table purposes, and where abundance of milk is used the creamy tint of the flesh is greatly reduced.

Full descriptions of the various breeds of fowls before-named will be found in the author's work on "Races of Domestic Poultry."

CROSSES FOR MEAT.

There can be little doubt that there is a tendency in all pure races to enfeeblement, and that, unless special steps are taken to prevent this by change of conditions, by the introduction of fresh blood, or by out-crossing, in process of time degeneracy must necessarily follow, and with it will be found a reduction of virility and of power of growth. For this reason crossing between distinct races frequently yields better results, more especially where a measure of forcing either in rearing or fattening is embraced in the process, than if the pure breeds are employed, due to the fact that the crosses have a larger amount of vigour, and often are quicker in growth and greater in flesh qualities. But in making such crosses it is essential that they shall conduce to the end in view.

Indiscriminate mating of breeds is undesirable in that the chances are that whilst there may be an increase of virility, the additional force thus obtained may not be in the direction of flesh production, or in fact any other. To accomplish the purpose we have in view it is necessary, therefore, that the breeds mated together to produce good table chickens shall each have definite table qualities.

In this connection the breeder must ever keep in mind that, as a general rule, in respect to colour of skin and legs, chickens follow the female parent. This question is fully discussed in "Poultry-Keeping as an Industry for Farmers and Cottagers," but to quote the arguments would take more space than we can afford. The fact stated is, however, generally accepted by breeders. That being so, it will at once be evident that in selecting breeds for crossing, and recognising the requirements of our markets, the hens mated must have white flesh and legs, whatever may be the male bird. If he has the same, well and good, but there are manifest advantages from the mating of yellow fleshed and legged males with hens of the opposite qualities. As we have stated elsewhere (1) "Many breeds of poultry owe some part of their characteristics to alien blood, and especially serviceable in this direction is what may be termed yellow blood—namely, birds which have yellow flesh and legs. These are, as a rule, the hardiest of all poultry, and in many cases they give greater size than would be obtained in any other way. In Britain much has been said as to the value of the Indian Game and Dorking for crossing purposes, and there can be no question that the greater vigour of the Indian Game means that the chickens produced by crossing that breed with the Dorking are even preferable to pure Dorkings for killing purposes." Below are brief notes on some of the best crosses for table chickens:—

INDIAN GAME AND DORKING.—A cross which has proved most valuable for the production of larger chickens, but as they are somewhat slow in growth they do not meet the spring demand. The flesh is abundant, well distributed, and fine in flavour. As a rule the birds are white-legged. For autumn and winter birds this cross cannot be excelled.

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(1) "Poultry-Keeping as an Industry for Farmers and Cottagers," London, 1904, p. 34.

INDIAN GAME AND BUFF ORPINGTON.—Also an excellent cross, and the same remarks apply as to Indian Game and Dorking, though these chickens mature rather more quickly than the Indian Game and Dorking.

INDIAN GAME AND FAVEROLLE.—Our experience has been that for quickness of growth this is the best of the crosses with Indian Game. In experiments conducted at the College Poultry Farm, Theale, in 1904, the cockerels attained in twelve weeks an average of 2.6lb. and pullets 2.1lb., and in 1905 the general average in thirteen weeks was 1.94lb.

INDIAN GAME AND HOUDAN.—A useful cross for second-class chickens, which are well fleshed, but not so large in size as those named before. Like all Indian Game crosses, they are not rapid in growth.

OLD ENGLISH GAME AND DORKING.—For quality of flesh and fineness of bone this cross cannot be excelled. The meat is mainly on the breast, and the skin is very fine and delicate. But the birds are somewhat slow in growth and small in size.

OLD ENGLISH GAME AND BUFF ORPINGTON.—The same remarks apply as above, and also to other crosses with Old English Game.

FAVEROLLE AND BUFF ORPINGTON.—In the experiments mentioned above (1) this cross attained the most rapid development. Of thirteen chickens kept under observation five were cockerels, and the average weight attained in twelve weeks was a fraction under 3lb., one bird weighing 3lb. 3oz. The eight pullets averaged in the same time 2lb. 2½oz., one weighing 3lb. In respect to weight of food consumed and total cost, which was (including egg, oil in incubator and brooder) a fraction over 9d. per bird, this cross was the best and most profitable.

Other crosses which can be recommended are:

White Wyandotte and Buff Orpington ;
White Wyandotte and Faverolle ;
Plymouth Rock and Buff Orpington ;
Plymouth Rock and Faverolle.

As a matter of interest it may be desirable to give the weights of some of the pure and cross-bred table poultry exhibited at one of the Smithfield Shows. Weight does not, of course, determine quality, but it is a guide as showing the varieties and crosses lending themselves to flesh development:

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(1) Reports on Experiments can be obtained from the Registrar, University College, Reading.

	Pairs Total.		Average.	
	lb.	oz.	lb.	oz.
Indian Game cockerels	14	13	7	6½
Wyandotte pullets	13	13	6	14½
Indian Game Dorking cockerels	18	10	9	5
Indian Game Dorking pullets	12	10	6	5
Brahma Dorking cockerel	16	14	8	7
Capons	15	14	7	15

CHAPTER III.

HATCHING AND REARING.

Collection of Birds—Higgler's Cart in Sussex—French Methods—Broody Hens—Incubators—Places for Incubators—Rearing the Chickens—Brooder Houses—Brooders.

THE method commonly adopted in the great table poultry districts of England is that the work of fattening occupies the position of a separate industry, comparatively few fatteners doing anything in the hatching and rearing of poultry. Higglers, as the collectors are called, scour the country for many miles round, buying up such birds as may be offered for sale (Plate II.), bringing them, of course, to the central establishments, where they are fattened off. This plan has undoubtedly advantages to recommend it, in that poultry raisers of the district reap a considerable benefit by finding a good market for their birds, which are paid for on the spot and taken away by the higglers, thus minimising trouble to the producers. Many poultry breeders, who go in for the best quality of fowls, make excellent incomes in this way. There is also less danger of the ground becoming foul, as would be the case if large quantities were concentrated upon a given spot. This is the great difficulty in the way of breeding and rearing. Where

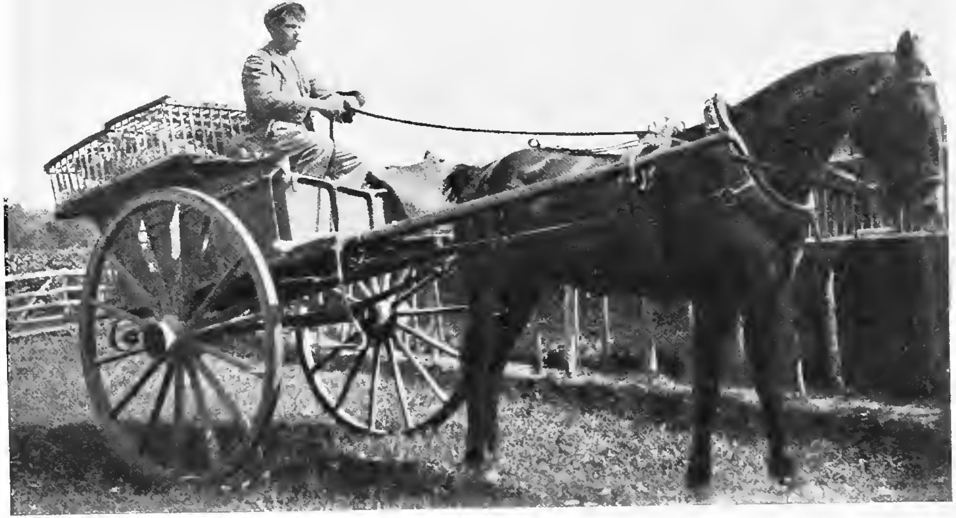

PLATE II.—HIGGLER'S CART IN SUSSEX.

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PLATE IV.—OUTSIDE PENS IN AN ORCHARD.

By Courtesy of
N.P.O.S.

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large numbers of birds are kept, cultivation of the soil must be on a sufficient scale to ensure full utilisation of the manure, which cannot be unless the land is much greater in extent than required by the fowls. We only know a few places where there is much done in the way of rearing chickens. When we come to understand the figures representing the operations of fattening establishments it will be seen how large is the number of birds passing through it. For instance, supposing, as an example, a moderate-sized fattening establishment accommodating, say, fifty dozen birds at one time. During the busy season, this means 200 birds will be marketed each week, and half that number at other periods of the year. It will thus be apparent that at such a place nearly 8,000 birds must be dealt with annually, the hatching and rearing of which would be an operation demanding considerable oversight and management. Moreover, at present the fatteners are specialists who have very little experience in rearing chickens. In the future we shall probably see the formation of larger concerns where the work is completed from start to finish, but probably the eggs for hatching will be purchased, not produced on the same place.

FRENCH METHODS.

When we turn to France we find that much more is done in the way of rearing and fattening combined, but in that country fattening establishments generally only finally finish off the birds, which are partially fat when purchased, and, this being so, the work is somewhat simplified. Even there we have met with a number of places which are purely for the purpose of fattening, no rearing at all being attempted, but purchases are made from the farmers and cottagers within a given radius. But the finest specimens are, as a rule, produced by those who undertake the entire work. In the Bresse country this is especially the case, and there farmers' wives are wonderfully skilful, and market finer chickens than do the fattening establishments. As a rule from 50 to 500 is the annual output on such farms, and the birds are killed, plucked, and shaped by the breeders. It is necessary to make these facts clear, because we are constantly being consulted by people who think of taking up rearing and fattening, but have not realised the magnitude of the operations to keep a good-sized fattening business supplied. Where there is abundance of room and the ground will not be overcrowded, there is no reason why a goodly number of chickens should not be reared in connection with a fattening establishment. At the same time, we question whether it would be desirable to entirely depend upon birds produced there, the difficulty being to obtain a sufficient number of eggs for hatching and to give the requisite attention to the young chickens. We have not yet arrived at the state of things met with in France, where, in given districts, the birds kept are almost entirely of one type. Thus eggs for hatching can be purchased with greater confidence as to results than would be possible in this country.

BROODY HENS.

We do not propose in this chapter to detail minutely the methods of hatching and rearing, as they can be found elsewhere, but rather to show the lines upon which work should be conducted. If hatching and rearing is to be done by a large number of small people, then as a rule they will be content to depend chiefly upon hens, though in this respect there has been a vast change in the last decade, as incubators have come into very general use both by large and small breeders. The difficulty is to obtain broody hens sufficiently early. To do so needs thinking a considerable time in advance, and the maintenance of heavier breeds of fowls which are more given to sitting than the lighter varieties. A complaint which one hears reiterated is as to the scarcity of broody hens at certain seasons of the year. The increase of egg-production and the adoption of non-sitting breeds has tended to the diminution of supply of sitting hens. Where hatching and rearing is carried out upon a larger scale, then another plan should be adopted—namely, artificial hatching and rearing.

INCUBATORS.

At one time incubators were very expensive toys, but during the last twenty-five years they have become a practical success, if not an absolute necessity, wherever poultry-keeping is carried on, either out of the regular season or upon a large scale. We are presuming here that fertile eggs can be obtained even in the winter months, and to that end it is essential that early-bred pullets and vigorous male birds be kept, rigidly weeding out the older birds, or great disappointment will be the result. This is a question which cannot be discussed here, but, unfortunately, hens are not as amenable to reason as incubators, yet the latter would be absolutely useless unless the former could be induced to give eggs when required.

There can be no doubt that an incubator is a most valuable help in the work of poultry keeping, and the advantages of artificial methods are apparent. In Britain, France, and America establishments are now to be found where artificial methods are adopted on a large scale, and without any apparent injury to the stock. The natural method is scarcely used at all.

There are various machines now upon the market, but it is not our purpose to enter into detail respecting them.

PLACES FOR INCUBATORS.

If only one or two machines are employed it is not difficult to find a room or cellar, the latter preferred, where they can be operated. But with an increased number of incubators special provision is necessary. This has led to the erection of incubator houses, in some cases on a large scale. In America, to meet the influence of extreme cold in winter and excessive heat in summer, such houses are wholly or partially underground, but in Europe such an arrangement is not required so long as they are well built, have substantial walls and roof, are protected against the sun's rays in the summer, and are well ventilated. A free circulation of fresh air is essential, as the consumption of oxygen in such houses, both by the lamps and the eggs, is very great.

REARING THE CHICKENS.

With regard to the rearing of chickens, the first point, whether natural or artificial methods are employed, if hatching is to be out of the ordinary season, is to have a large chicken-house or roomy shed, in which the coops or brooders can be placed. Otherwise there would be great mortality during the winter months. During the early stages of growth the young birds must be kept warm, or chills will result, followed by bowel troubles and death. The chicken-house should face the south or south-east, have plenty of glass in it or in favourable positions have an open front, be thoroughly well ventilated, and the floor be thickly covered partly with either dry chaff or litter and partly with cut chaff. Herein the chickens can run about, and if fed properly will thrive excellently during the colder months of the year. As to the principles of rearing we must refer readers to other sources of information.

Brooders are equally important for early chicken-rearing as are incubators, and the same reasons for one stand in the case of the other. Within recent years remarkable progress has been made in artificial rearing, which is now conducted upon a much more extensive scale than was at one time thought possible. Not only is this true in respect to the machines themselves, but advance in knowledge of the science of feeding is equally great. The latter especially has made successful what was at one time regarded as very doubtful indeed—namely, the artificial rearing of chickens on a large scale, and the young birds massed in large numbers. It will be readily understood that a system which yields satisfactory results when the operations are small, and only a few chickens are kept together, may utterly fail if attempted with hundreds or thousands instead of tens. The conditions are altogether changed. Influences which were impotent under one set of circumstances may become powerful factors for evil. Such certainly has proved to be the case. Happily we have largely surmounted these difficulties, and there is abundance of proof that chickens can be reared in large numbers even when massed together. As a rule, however, where the rearing is in the hands of farmers and cottagers who have not the desire or time for extending beyond a reasonable limit, these large operations are unsuitable. They enter into a different phase of the question, one that partakes of a specialist nature. A few words with regard to arrangements for rearing on an extensive scale will not be out of place.

BROODER HOUSES.

When the operations involve the rearing of thousands of chickens, the question of labour is of serious importance, and no business can be profitably conducted beyond the qualified labour available. It is at such a stage of development when every effort must be put forth to reduce the work to its lowest limit compatible with the attainment of success. Upon a place where 5,000 chickens were raised artificially in one season at least forty individual brooders of the ordinary size and pattern would be required, the attention to which would be very great. The same number of birds can be accommodated in one house with a great reduction in the labour involved. Extension, therefore, has led to the adoption of other methods than those formerly in vogue, capable of meeting the altered ideas and conditions, and now, both in this country and America, the output of chickens is greatly in advance of what was regarded as practicable a few years ago, due to the fact that they can be reared successfully in large houses where the number massed together is considerable. To accomplish this it is essential that a special house shall be provided, well lighted, freely ventilated, having a wooden floor so that what is known as the dry feeding system can be adopted, easily cleaned, and with corresponding runs outside. By means of a house of this kind extremes and variations of temperature can be minimised and the inmates kept under as nearly the same atmospheric influences as would be the case if they were naturally reared in the months of March and April.

With the introduction of this system the form of heating to be adopted requires careful consideration. The plan which is most common in America is to fix rows of pipes, heated by means of a special slow-combustion stove, which can be regulated in temperature. The house is divided into compartments, and in each what is called a "hover," by which is meant a cover to radiate the heat upon the chickens within, is placed. Where the operations are upon a sufficiently large scale to keep the house working at or nearly to its full capacity, such an arrangement has many advantages, and one stoking of the furnace serves the entire house. But should it be partly filled, there is a corresponding loss of power. The additional cost of stove and piping does not compare unfavourably with the purchase of individual brooders, but it is necessary to add to the house a special building for the stove and furnace, and that is a considerable increase of expense, as it must be well built. These continuous brooders have not proved the success that was anticipated, and during the writer's visit to America he found the continuous was being given up for individual brooders. The other plan is to have an individual brooder for each compartment, so that the heating is in conformity with the number of chickens, as the brooders would be brought into requisition as the demand for accommodation increased.

BROODERS.

Where operations are on a smaller scale, the use of separate brooders outside is to be recommended, as they are self-contained and can be moved to fresh ground as often as is thought desirable. Within recent years there has been a great improvement in these appliances, but as our ideas have changed in respect to the method of feeding, so must the brooder used conform thereto. The dry feeding system necessitates that what was a covered grass run in the older type of brooder shall have a floor of wood, in order that this shall be kept covered with cut chaff, and among it the food shall be scattered and the chicks compelled to work in obtaining their nutriment.

One important point must be mentioned in connection with table chickens which are intended to be crammed—namely, that whilst the dry feeding system may be adopted during the first month of their existence, after that time it is necessary to give them a much larger proportion of soft food. Otherwise the crops are unduly contracted, and will not hold enough food to bring the birds into the best condition.

Some years ago we called attention to the French trade in young chickens, which is one of the results of artificial hatching on a large scale. Since that time it has been largely adopted in this country, and has every prospect of growing enormously. One or two establishments each sell annually about 30,000 chickens, and there are many operating upon a smaller scale. The birds are sent away when a day old, and are packed in specially prepared boxes. They will travel hundreds of miles in perfect safety, if bred from hardy stock and forwarded at the right time.

CHAPTER IV.

SHEDS AND PENS.

Use of Sheds—Cages Employed—Single Compartment Cages—Use of Outside Cages—Examples—French Fattening Sheds.

DURING the final stages in the work of preparing chickens for the table, two leading factors are found—namely, the limitation of exercise so as to bring the muscles into soft condition, and an adequate supply of food of such a nature as to increase the same tendency and add to the total weight by fatty deposits throughout the system. Both are equally important. Each assists in the attainment of final success. The absence of either will retard that fleshy development which is sought for.

USE OF SHEDS.

The question as to how far sheds are necessary need not delay us long. There are those who believe that the best results are achieved when the birds undergoing the process of fattening are kept in sheds during the entire period. Such is the view held by many of the best fatters in France and Belgium, but it is not thought necessary or desirable in this country, and for a portion of the time they are kept in outside cages. Much, however, would depend upon climatic and other influences. In the South of England, which is the great seat of the fattening industry, the conditions are distinctly favourable, and there are many sections of Great Britain and Ireland where extremes of temperature are not found. In such places what is known as the Sussex method can be recommended as the better. At the same time, it is necessary to say that in the colder and more exposed parts of the country, where natural shelter is limited and cold winds and driving rain are prevalent, the system of open-air caging would be unsatisfactory, and it would be necessary to keep the birds under cover all the time. Under such conditions, however, it is questionable whether the work of poultry-fattening should be undertaken, except to a limited extent to meet local needs. The suitability of any industry to the environment is of the greatest importance. Much may be done even under the conditions last-named to improve table chickens by confinement and food, but to secure the full results of the treatment will not be possible in face of adverse influences. The general experience is that both outside cages and sheds should be employed, changing from one to the other as stated below. Upon this question wider observations have shown that, except in very cold or extremely hot weather, when a large roomy shed minimises external extremes, one of the primary conditions is that the birds undergoing the fattening process shall have an abundance of fresh air at any rate during the earlier days of the process, though of importance all through, and that they fatten better when the time they are kept in sheds is reduced to the last ten days. The chief danger arising from keeping in close sheds is where careful attention is not paid to cleanliness. It can be realised that if the manure produced by the birds is not regularly removed, and the cages are not themselves kept sweet and clean (and in these respects some fattening establishments are by no means models), evil effects will certainly accrue. Under such conditions open-air pens would be preferable. Some fatters complete the process in the outside cages during the warmer months of the year, covering them up with sacking or stout canvas, but as a rule it is found better to remove to sheds during the last few days—that is, when cramming commences.

CAGES EMPLOYED.

The cages used both outside and inside are of the same pattern with one exception—namely, that the former usually have a sloping top made of wood to carry off the rain, though that is not always the case, for in some instances ordinary cages are employed, the tops of which are covered with furze or corrugated iron. These cages are usually made about 7ft. 6in. long by 20in. wide and high, and divided into three or five compartments, to each of which is a sliding door. They are built entirely of laths of wood, except where the outside cages have solid tops, each lath about 1in. by ¾in., and placed 1½in. apart, except in front, where the openings are 2in. to allow the birds passing their heads through for feeding, and these observations apply to divisions between the compartments as well as the ends and backs. The bottoms differ slightly in that the laths or rods are stronger in order to bear the weight of birds, and are

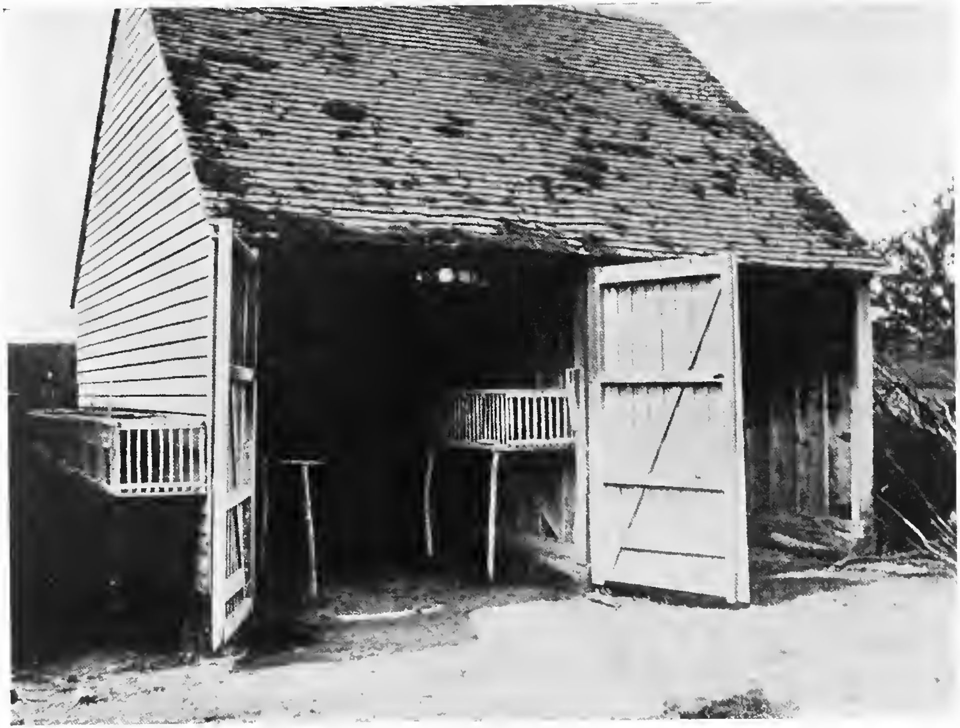

PLATE V.—FATTENING SHED AT BUXTED, SUSSEX.

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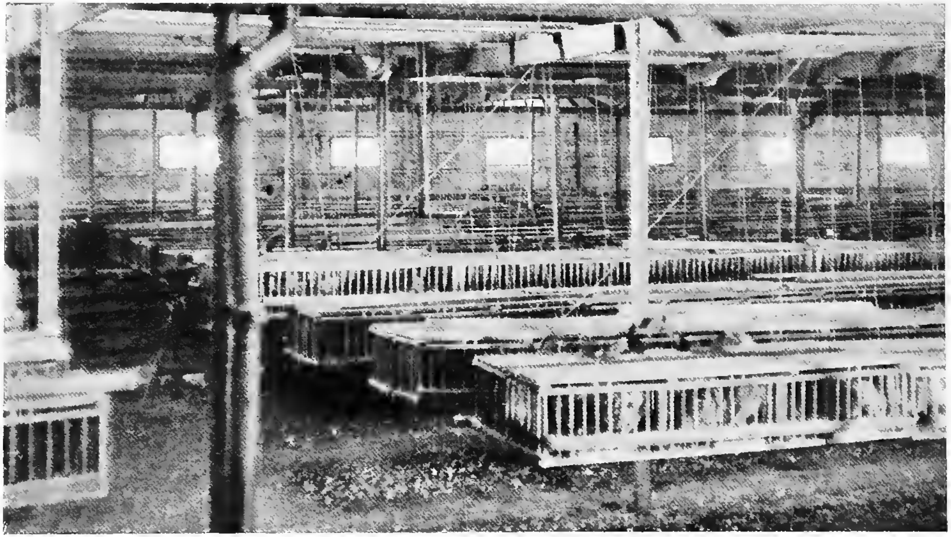

PLATE V.—INTERIOR OF FATTENING SHED AT LIVERPOOL.

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cut 1½in. deep, 1½in. wide at top, narrowing to 1in. below, the object of which is to allow the droppings to fall between without catching on the sides, as would be the case if they were squared. In front of each cage is suspended by means of loose cords, or resting upon supports, a trough of the same length. This is V-shaped and cut from a single piece of wood, or well fastened together. In this trough the food is placed, and after feeding it can be laid on top of the cage so as to be out of the way. From the description it will be seen that the cages are very simple and can be cheaply made, as they consist of four pieces of quartering, 2in. square, upon which the laths are nailed. The partitions are made separate, fitted into the frame, and held firmly by a few nails. As a rule the cages are raised about 3ft. above the ground when outside, and 30in. inside, resting upon cross-pieces of timber supported by uprights driven into the ground. Thus they can easily be removed for cleaning and limewashing, which latter is necessary to sweeten them and kill parasites.

A most important point is where the outside cages are located. In many fattening centres it is customary to place them by the side of hedges or in orchards, as shown in Plate IV., at the establishment of Mr. F. Wheeler, Marden, Kent, where they can be sheltered from wind and rain, or under the lee of large buildings. But in some of the larger establishments which are now to be found they are massed in open yards surrounded by walls, so that the same purpose is achieved. In the colder and more exposed areas open-fronted sheds may be used. Undue exposure would have the effect of causing a greater consumption of food and of inducing chills and colds, for which reason the method adopted should be in accordance with the conditions.

SINGLE COMPARTMENT CAGES.

In France another form of cage is common, and also at one or two establishments in this country. These are much more substantial, and are entirely used under cover. They are chiefly employed where the cages are in three or more tiers, and not singly, as is usual with us. At one place we have visited in Hungary the stacks consisted of five tiers, but the results could not be regarded as satisfactory. Each bird is in a separate compartment, which has the advantage of permitting the fattener to observe the individual progress made. But there is that loss of competition in eating which causes the birds to consume a greater quantity of food, and thus brings them more rapidly to the finished state of body. These cages are 6ft. long, 1ft. 6in. deep, 1ft. 9in. high, and each compartment is 1ft. wide, and they stand on short legs. The ends, back, top and divisions are solid. The front is made of laths with sliding doors, and the bottoms are also of bars. Below is a sliding tray the entire length, similar to what is used in canary cages, to catch the manure. This is kept covered with earth, and is cleaned daily. If the birds are to be trough-fed, a similar arrangement to that already noted is added, but where they are to be crammed by hand or machine that is not required. These cages are much more expensive than those previously described, and where used in tiers the danger of disease is much greater, requiring regular and systematic cleaning and frequent disinfecting.

USE OF OUTSIDE CAGES.

The plan usually followed where outside cages are employed is to place the birds in these for the first seven to ten days. During the first day no food whatever is given, as it is often found that fowls fret when first confined, seeking escape from their restricted condition, even though they have an abundance of food before them, and as a consequence would rapidly lose weight. If, however, they are kept without food for the time named they become so eager for it that the loss of liberty becomes of small moment so long as they can satisfy their appetite. As the food is entirely soft, and probably differs considerably from that to which they have been accustomed, it is often necessary to tempt them by scattering broken maize on the top of the food, and in picking this they take part of the other. They are fed twice a day, and given as much as they care to eat. Whatever remains in the trough must be removed as soon as they are satisfied. A bad feeder will do no good, and should be removed from the pens. Those that eat readily will be found during the first week or ten days to have full and hard crops, which denotes they are assimilating the food well. When they have been a week in the cages it is desirable that the attendant, once a day, shall feel the crops of the birds after feeding. So long as they are full there is no need for cramming, but as soon as they are found to be soft that is a sign the appetite is failing, and they must be killed as half-fatted birds, or removed to the sheds for cramming, as it is useless continuing the trough process. Some chickens will continue to feed much longer, and when that is so they need not be crammed at all. Vast numbers of birds are killed at this stage, when they have sensibly improved in quality and increased in weight, but do not equal those which are continued to a later stage.

EXAMPLES.

One of the best forms of shedding on a moderate scale we have met with is shown in Plate V. from a photograph taken at Buxted, Sussex. In this case the fowls are kept, during fine weather, in outside pens whilst being fed from the trough, and removed to the shed when cramming commences.

Taking as an example one of the ordinary fattening sheds in this country, we find that the chief idea seems to be to keep the fowls warm, to feed them regularly, and to have a constant succession of birds ready for the market. We must confess to feeling, in spite of the success which attends this trade, that much might be done to improve it, and the expenditure of a little more money in buildings would probably soon repay itself. Many of the sheds are very roughly put together—too roughly, we think, for the purpose.

One of the finest fattening sheds in this country is shown in Plate V. This is at Liverpool, owned by Mr. J. Ruddin, who obtains his supply of lean birds in Ireland. The buildings were formerly used for tramway stables, but since the days of electricity they are no longer required for that purpose. They are roomy, lofty, and well-ventilated. It will be seen from the illustrations that the cages are suspended by wires from the rafters, an arrangement which makes for cleanliness, as there are no supports below to become harbourages for manure and vermin. This esablishment has accommodation for 15,000 birds. Another interior is shown in Plate VI. At some of the great fattening plants which we have visited in America the cages are built in four or five tiers, but that is a plan which cannot be recommended. These places only work for a few weeks in summer, when birds are cheap, when they are placed in cold storage for winter and spring sale.

FRENCH FATTENING SHEDS.

So far as France is concerned, there is not much to add to what has been already stated. We have visited several fattening establishments in the Bresse district, where great quantities of birds are dealt with every year. Here the pens are rather better made than those seen in Sussex, being built of thin rods inserted into strong wooden frames, and accommodating from half a dozen to ten fowls in each pen. In some cases we found them stacked three and four tiers high, with boards between, but as the birds are there only fattened for about a week, for reasons which will afterwards be explained, there is small danger of disease in this direction. As a rule they are kept during the colder months of the year in covered sheds, which are warm and comfortable, and it is surprising how many can be so accommodated in a single room. On farms the fattening cages, not dissimilar from those used in Sussux, though single and of a more substantial character, are placed in a dark corner of the cowhouse, which has the dual effect of keeping them undisturbed and also in a warm temperature. In one instance we found the fattening pens in a room adjoining the bed chamber. We are bound to say that, even among the most successful fatteners, very little attention appeared to be paid to the question of fresh air, and we should not have been surprised to learn that trouble was caused in this way. However, no indication of evil results could be seen at any of the places visited. In one or two instances the cowhouse was decidedly better than already suggested, and there seemed to be a fair idea as to keeping the cages sweet and clean. The birds are almost entirely in the dark, the object of this being, of course, that they may not be excited in any way. The best place, so far as appearances are concerned, was at Fleuriat, upon a larger farm than the usual run of the country, where everything was done upon a good scale. A special house was devoted to the purpose of fattening, and though the accommodation was small, the fowls appeared to receive better attention in these points. At the place just named they fatten about 600 per annum, during the winter season keeping about 50 constantly in the cages. We have never yet seen any fattening pens in France placed in the open air, and the sheds are usually of a more substantial character than in this country.

CHAPTER V.

POULTRY FATTENING IN ENGLAND.

Sussex Fattening—The Sussex Higgler—Ground Oats the Staple Food—Trough Feeding—Half-Fatted Chickens—Cramming—Cramming Machines—Results—Why Fatteners Do Not Rear—Cold Storage.

In the days of Arthur Young the counties of Sussex and Berkshire were famous for their table poultry, but since that time the trade has been concentrated chiefly in the county of Sussex, together with a few places in West Kent and in Surrey. It might, as previously suggested, from this be assumed that there are specially favourable conditions in the South-Eastern counties to make poultry-keeping a success, but whilst it is true that the soil and position are favourable to the industry, there is no advantage which can be claimed over many other parts of the country. The dry soils which prevail in the poultry districts and the mild climate conduce to the early and rapid growth of chickens, but these can be found elsewhere. The people of the district for some reason or another have gone into it, and there can be no question that it has proved a success. Upon this point we have already quoted from the Report to the Royal Commission on Agriculture by Mr. R. H. Rew, Assistant Commissioner, on "The Poultry Rearing and Fattening Industry of the Heathfield District of Sussex," which was issued some years ago. Those who know the district will agree that there are many other parts of the country equally suited to the industry. It has, however, been proved that, so far as the actual fattening is concerned, Sussex has no monopoly. The difficulty which establishments have to meet elsewhere is a sufficient supply of suitable birds.

Whatever is to be learned in connection with English poultry fattening must be from the Sussex district. Of course there is a large and decidedly useful amount of poultry produced in other parts of the country, more especially in South Lincolnshire, Essex, and the Wexford district of Ireland, but the examples to be met with in the South of England are certainly of the highest type, and there can be no doubt that splendid quality fowls are turned out by the fatteners in the county. The information given in our introduction as to the influence of soil upon the chickens should be carefully studied by all who desire to take up this branch of poultry production.

THE SUSSEX HIGGLER.

So far as the question of the trade is concerned, it is very difficult to appreciate exactly what is done in this direction, but it is estimated that the trade now represents something like £225,000 per annum. It is to one fact—namely, regularity of supply—that the district can dominate the poultry markets of the entire country. More will be said on this point in considering the question of marketing, but it may be well to mention that a regular supply is essential to the success of any industry. In the majority of instances fatteners do not raise many fowls themselves, but send out higglers who collect from raisers (Plate II.). These higglers scour the country around for birds and cover wide areas. So great is the demand at certain seasons of the year that breeders command high prices for good specimens, which are bought, paid for, and taken away by the collectors.

GROUND OATS THE STAPLE FOOD.

It will be realised that a most important question is that of food, and in this respect we have to consider both the nature of the food and the form in which it is given. Taking the latter first, it must always be in the shape of meal and never corn, for the reason that as the fowls are caged they take no exercise, and consequently would be unable to digest corn. Moreover, the use of meal or soft food always tends to the production of fat and to increased weight of the body. Thus it is universal to feed in this manner.

The meal which is generally used in the South-Eastern counties of England is ground oats, specially prepared by the millers in the Tonbridge district, who know how to grind it so that husk as well as kernel is made into meal. For that purpose the small, thin-skinned dry Eastern European oats are chiefly employed, as British oats contain too much moisture and are heavier in the husk. In France barley meal is used to a considerable extent, and also buckwheat meal, whilst in Belgium the last-named is generally employed. Attempts have been made at various times to utilise maize for this purpose, but it makes yellow fat, which is objectionable. The question of cost is, however, serious in connection with ground oats, as it runs from £9 10s. to £10 per ton when pure. Hence a mixture of one part ground oats, one part barley meal, and one part fine thirds or maize meal is frequently employed; though it does not give quite the same result, yet it is cheaper. The meal, whatever it is, must be mixed with soured skim milk or buttermilk, and the experience both at home and abroad is that whole milk is wasteful and does not give the same result, whilst sweet skim milk would not fatten the birds as well as the soured. The acid generated in the soured skim milk tends to stimulate the appetite and assist the digestion, and it is also stated that it dispenses with the need for green food. It is customary to add a little fat to this mixture during the last ten days, say, ¼oz. to ½oz. per bird per diem.

TROUGH FEEDING.

When the birds are put into the cages they are given no food for the first twenty-four hours, which tends to make them content with their new conditions. The food, whether to be used for trough feeding or for cramming, is prepared twelve hours before it is needed; in fact, generally the mixture is mixed after one meal for the next. The consistency, of course, will depend upon the method of feeding adopted, but for the cramming machine it is semi-liquid—that is, will run but not freely, something like thick cream. The meal and milk and fat are thoroughly mixed, so that the food is perfectly smooth. During the time when it is standing there takes place a slight fermentation, which is highly advantageous, as it thoroughly assimilates the mixture and practically performs something of the same purpose as cooking by breaking down the fibre in the meal. Of course, it must not be allowed to go too far, but experience has shown that this system is the best for the purpose. When the birds are being fed from the troughs, after they have eaten freely any food left should be removed, and when they have been put up about a week to ten days it is customary to feel the crop. As long as they will eat plentifully there is no need to cram them, but as soon as the crop becomes soft, and it is seen that the appetite is failing, then they are removed to the fattening sheds. They are fed twice a day, and regularity in this must be observed.

HALF-FATTED CHICKENS.

As already mentioned, large numbers of chickens are killed at the end of the first period of fattening, the time when cramming would commence if they were to be fully fed, usually ten days after they are put into the outside cages. At this time they are in what is called "half-fatted" condition. By such treatment the birds are greatly improved and have sensibly increased in weight, though the improvement is largely in securing the softness and colour of flesh which are so much desired. The former result is of great importance. Except during the early stages of growth, say, after the bird is twelve or thirteen weeks old, up to which time the flesh is tender, there is a tendency to hardening of the muscles, increasing with age, and, as a consequence, the meat is firmer and closer in texture, making it less tender when used for food. The object of feeding off, or fattening, is to restore softness to the flesh, which can be accomplished by the methods of feeding described in the next chapter. The cost of such treatment is small, and for ten days the food should not entail an expenditure of more than 2d. to 2½d. per bird, whilst the value is improved from 6d. to 1s., in accordance with the season of the year. These half-fatted chickens are sold in large numbers, meeting a demand for good quality birds at a moderate price, for it is an undoubted fact that, excepting perhaps in London, the sale of chickens at 3s. 6d. each or less is twenty, if not fifty, times as great as those at, say, 4s. to 8s. each. In many markets there is no inquiry for expensive chickens, and it would be useless and unprofitable to produce high-class specimens under such conditions. At the fattening establishments which have sprung up in other parts of the country the plan usually adopted is to send the picked specimens for sale in London, where the demand for them is greatest, reserving the second and third qualities for the local markets, in accordance with the prices obtainable.

For the reason here indicated, it is evident that half-fatted chickens form an important branch of the trade done. In fact, some of the fatters in Sussex and West Kent sell more of these than of the finished specimens. At the seaside resorts and watering-places on the South Coast a large trade is done from the districts named, the bulk of which is for the partially fed birds. In all com-

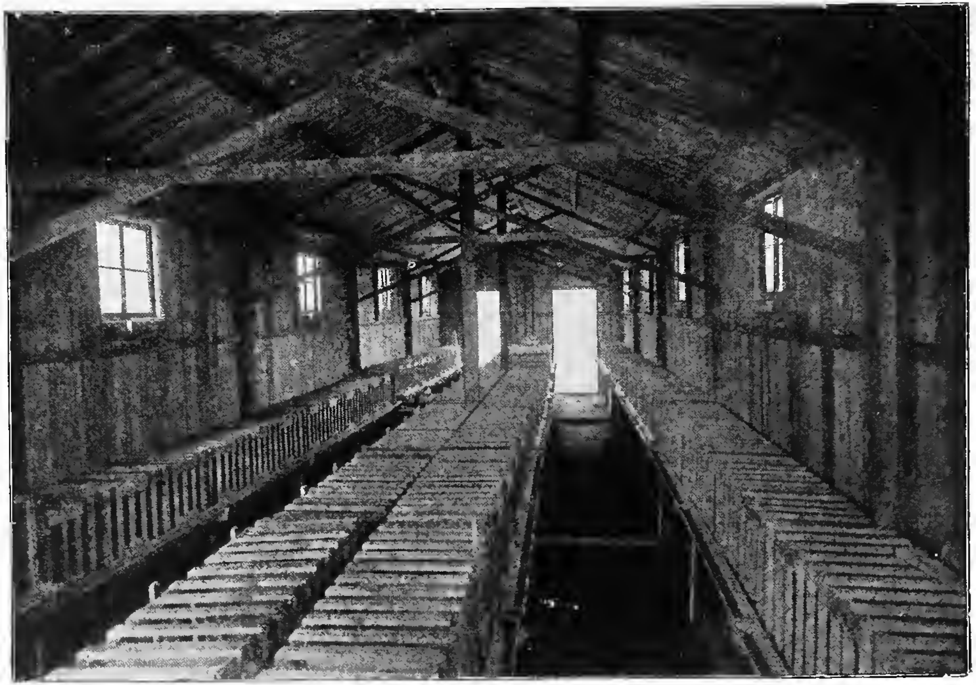

PLATE VI.—INTERIOR OF FATTENING SHED.

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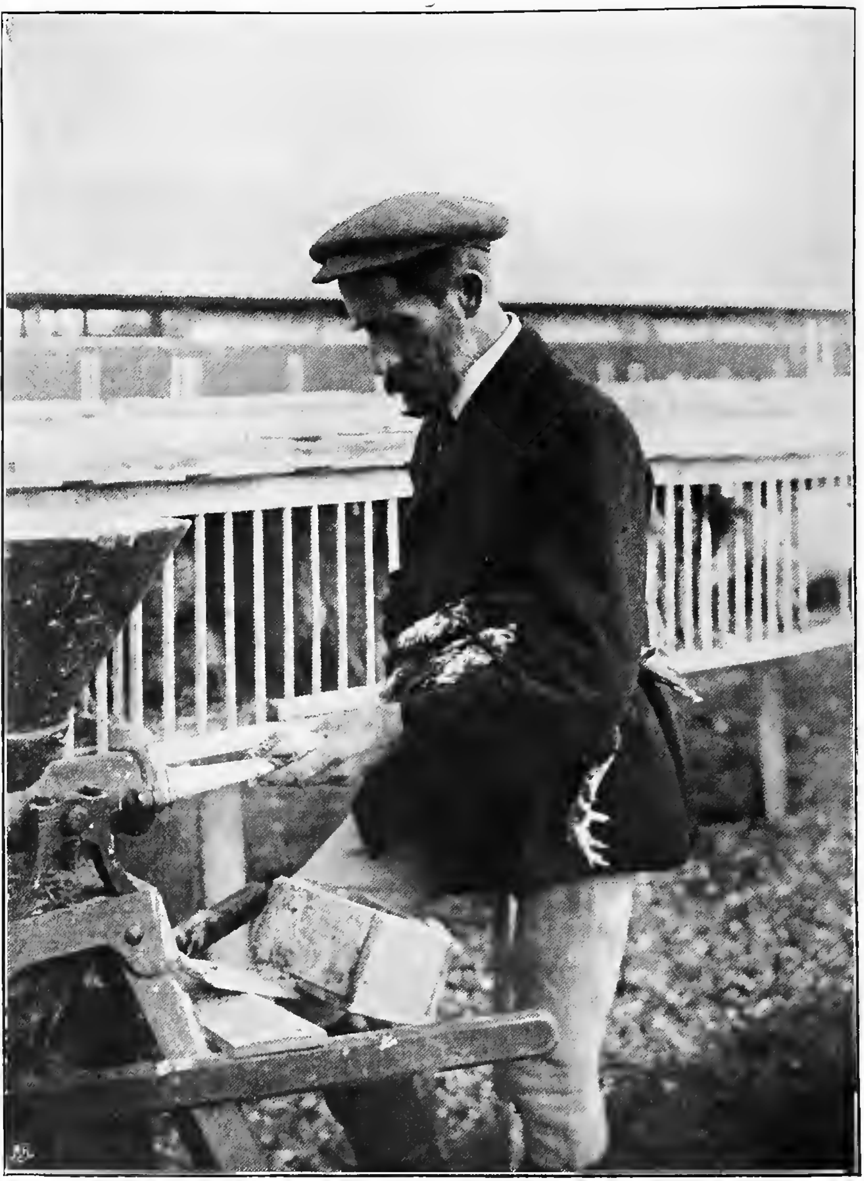

PLATE VII.—SUSSEX CRAMMER.

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mercial enterprises the return must be considered in relation to the cost of production, and a poultry fatter can no more afford to sell a fat chicken at a loss than any other business man. In many markets, however, there has been a vast improvement of late years. Consumers will not jump all at once from 2s. 6d. to 5s. for a chicken, even though the latter may be cheaper in view of the amount of edible flesh it carries as compared with the former, but they may be led gradually from one price to the other. Poulterers have found by steady improvement of the quality of birds offered for sale that their customers will give more and more, and in this way the chickens and ducklings offered for sale in different provincial centres have advanced considerably within the last ten years. And more can be done in the future. There are, however, markets where only the lowest prices can be obtained, and these should be avoided by the poultry fattener.

CRAMMING.

For such birds as are intended to be fully fed what is known as "cramming" is universal in this country, and there can be no question that the finest specimens are the result of that system. As already mentioned, they are kept in open-air cages for about ten days, when the appetite begins to fail. To test this, the crop of each bird is felt after the regular time of feeding, and as soon as it is found to be only partially filled, indicating that the desire for food is slackening, it is then ready for and is removed to the inside cages, and actual cramming commences. About this process very mistaken ideas are often prevalent. Many people have the idea that "cramming" is a cruel operation. That it can be so in the hands of a careless or inexpert operator is undoubted, but properly performed there is no cruelty whatever. The action is momentary, and any injury to the throat of the fowl would set up inflammation, with death and consequent loss to the owner.

CRAMMING MACHINES.

For this work various machines have been devised, and we have seen a regular process of evolution. The old type of Sussex crammer was a very cumbersome affair, similar to a sausage machine, and requiring two men to work. With this machine very good work was done, but it was cumbersome, and Messrs. Neve Bros., of Heathfield, some time ago introduced a modification (Plate VII.), which by means of a pedal arrangement saves the labour of one man, and is universally employed in Sussex. Another excellent machine is the "Hearson" crammer, manufactured by Messrs. C. Hearson and Co., 235, Regent Street, London, W. This machine is coming more and more into use, and the accompanying illustration (Fig. 2) will show its operation. It consists of a reservoir for the food, below which is a pump cylinder. In this operates a piston rod worked by a foot lever. From the cylinder is a nozzle, covered with indiarubber tubing. The food is made semi-liquid, say, rather thicker than the consistency of cream, and is placed in the reservoir. The method of operating is as follows: Take the tube in the right hand, the bird's head in the left, the bird itself being held under the left arm; then, with the assistance of the finger and thumb of the right hand, open the bird's mouth, and slip the forefinger of the left hand into it, to hold down the tongue; quickly insert the end of the tube, and draw the head along so that the tube passes down four to six inches (according to the size of the bird); at this moment depress the heel of the right foot (which up to this time had been resting on the treadle), and force the contents of the cylinder into the bird's crop. If

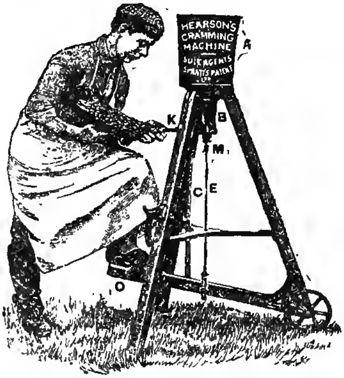

Fig. 2.—HEARSON CRAMMER.

the crop be full enough, the tube may now be withdrawn, taking care, however, to relieve the pressure on the treadle for a second or two before taking the tube out, otherwise a small quantity of the food will continue to flow after the tube is removed. It may be mentioned that the quantity of food can be regulated to a nicety, and the great point is to cease the moment sufficient has been placed in the crop. A most important point in connection with the fattening of poultry is to give the food regularly, and if there is any remaining in the crop from the previous meal not to feed at all.

RESULTS.

As showing what can be done by the system of fattening, we give some figures kindly supplied to us by Mr. C. E. Brooke, Past-Master of the Poulters' Company of London, showing the increase of weight in the birds he exhibited at the Dairy Show of 1894. Twenty-four birds in all were put up for fattening, nine cockerels and fifteen pullets, and the total gain, after the birds had been killed and plucked, was 55lb. 3½oz., the greatest gain being 2lb. 15½oz. in the case of a Houdan-Indian Game pullet. The birds were kept under the process from September 10th to October 8th, a period of twenty-eight days, but the prolongation was for a special purpose. The following is the increase of weight during the process of fattening :—

	lb.	oz.
Gain first week (September 10th to 17th)	11	4
,, second week (September 17th to 24th)	32	11
,, third week (September 24th to October 1st)	8	14
,, last week (October 1st to 8th) weighed dead	2	6½
Total gain on 24 birds (September 10th to October 8th)	55	3½

This shows that the greatest amount of gain was during the first and second weeks. The average gains during the different periods are of interest :—

			Gain.	
	lb.	oz.	lb.	oz.
Average weight September 10th (24 birds)	4	15½		
,, ,, September 17th	5	8¾	0	9¼
,, ,, September 24th	6	14½	1	5¾
,, ,, October 1st..................	7	4	0	5½
,, ,, October 8th	7	5½	0	1½
Total average gain over the entire period			2	6

It is interesting in this connection to show the respective gains of the various breeds and crosses amongst the birds used for the experiment:—

	Total gain.		Average gain.	
	lb.	oz.	lb.	oz.
6 Houdan-Indian Game	15	12¼	2	10
6 Indian Game-Dorking	14	3½	2	6
4 Plymouth Rocks	9	2¼	2	4½
8 Plymouth Rock-Dorking	18	1½	2	4

From which it will be seen that the Houdan-Indian Game came out with the greatest average gain, thus confirming the recommendation already made with regard to this cross.

We indicate above the methods adopted for producing the best table fowls, and whilst entailing trouble and care, it brings its own reward, for the specimens so produced command good prices. For the great majority of birds the foregoing recommendations are greatly modified, so as to reduce the cost of food and labour. In the first place there is no preliminary treatment as explained above, both the birds are placed at once in the outside cages, where they are kept about ten days, when they are removed inside and crammed for a similar period, thus bringing the entire process into three weeks, in which time they will increase in weight from 1½ to 3lbs., in accordance with original size and weight. The total cost should not exceed 8d.—namely, food 5d. and labour 3d.; but it will be realised that the last item depends upon the number of birds handled. If a fatter is employed at 25s. per week he must market 5,200 birds per annum, which is well within his power so far as time is concerned, to keep the charge for labour to the amount stated; but if pluckers are employed—and that is often desirable, as women's labour is less expensive than men's—the number of birds must be correspondingly increased. An expert fatter, with the assistance of a boy and a good woman plucker, can easily prepare 300 birds per week, that is, have 900 in the cages regularly, and if the number stated can be maintained during the greater part of the year, the charge for labour will be sensibly reduced.

WHY FATTENERS DO NOT REAR.

The question is often raised as to why the Sussex fatteners prefer to buy birds instead of rearing their own supplies. More is now done in rearing than was formerly the case, but the bulk of the birds are bought. The reason is that fattening is a highly specialised business, demanding constant attention and expert labour. To attempt rearing on a wholesale scale would enormously increase the oversight and management. For an establishment turning out 300 fat fowls per week, it would be necessary to hatch upwards of 16,000 chickens, which would involve the keeping of a large stock of breeders or the purchase of upwards of 25,000 eggs, and care of sitting hens or incubators and brooders on a large scale. Such would not be above the ability of good organisers and managers, and will doubtless be accomplished ere long, but it presents many difficulties. Under the present system stock are widely distributed among farmers and cottagers, who each rear a few birds and can give them an amount of individual attention which would be impossible if great numbers were massed together. There is much less danger of tainted soil due to overcrowding, and the fattener can concentrate his labour and efforts in the one direction. From a national point of view the system in vogue in preferable, as it tends to the greater good of the greater number. Chicken-breeding for sale to higglers is of benefit to a large number of persons. But the demand is greater than the supply, as proved by the fact that vast quantities of lean birds are imported into Sussex and West Kent from the West of England and from Ireland, estimated at about 300,000 per annum. The increasing difficulty of obtaining a sufficient number of suitable birds in the spring is compelling fatteners in some cases to rear chickens to meet their requirements at that season, which will probably increase in the future.

Since the former edition of this work was published the cramming system has been adopted in several other parts of England, notably Essex, Norfolk, Lincolnshire, Yorkshire, Cheshire, and Devon, with considerable success, and even to a greater extent in Ireland, whence greatly improved dead fowls are now received. As already stated, the primary difficulty in many districts is the obtaining of a sufficient supply of suitable birds. That, however, will in process of time be overcome. Whilst it is true that almost any fowl can be improved for table purposes by fattening, the laying breeds will never produce first, or even second, class table poultry, and to secure the best results those races which yield the greatest amount of flesh, are quick in growth, and quiet in disposition must be obtained.

COLD STORAGE.

Great has been the development of cold storage, both for transportation and keeping perishable commodities from one season to another. The system is of the greatest value, preventing gluts and consequent loss to traders, as the goods can be held until they can be sold profitably. But it is unquestionable that meat of any kind treated in this manner for a prolonged period fails to compare in quality and flavour with that which is freshly killed. Whilst it may, therefore, be most serviceable for second and lower grades of produce, it is not desirable for the best qualities. But we believe a cold storage plant will become a necessity on all fattening establishments for chilling the birds and keeping for a few days to meet market requirements.

CHAPTER VI.

FATTENING FOWLS IN FRANCE.

Woman's Work—Fattening General—Not a Separate Industry—In the Bresse District—Capons and Poulardes —Grades in France—Methods of Feeding—Foods Employed.

IN connection with all French rural observations it must be remembered that France is a country of small proprietors and small farmers, and that even where land is rented farms are moderate in their extent. Throughout many of the departments a farm of fifty hectares (120 acres) is regarded as very large, and the more general size would be from ten to twenty hectares. This state of things has had great influence upon the agriculture of the country, for much more attention is given to the smaller products than prevails here. Business is conducted in a less wholesale fashion than we are accustomed to find in Britain, and there remains that old-time custom of producers coming into direct touch with customers which is only possible when markets are depended upon rather than dealers. And it must be conceded that, so far as poultry are concerned, Frenchwomen are wonderfully skilful, though in this respect there are some cleverer than others, as will be the case everywhere. These differences will always be found, and we have had offered as bad butter in France as is to be met with in not a few ordinary English farmhouses, and that is saying a good deal, though the average quality of production is decidedly higher than with us. But it must fairly be acknowledged that, so far as poultry are concerned, the general run of French farmers' wives are enormously in advance of those to be met with at home. We may hope, however, that with the spread of technical education throughout our rural districts, and more especially if the younger folk avail themselves of the opportunities afforded them in this direction, and the realisation of the fact that newer and improved methods may be adopted with advantage, we shall see a vast change within a few years. The signs thereof are evident to the discerning eye.

FATTENING GENERAL.

Although the methods of fattening adopted in France vary considerably, yet as a rule one main idea appears to be prominent—namely, that the birds shall be kept warm, in semi-darkness, and be fed on flesh-forming foods. Other points are largely matters of detail, resolved by immediate circumstances. In some places one plan is followed, in another a different custom is adopted, but the great fact to be made prominent is that the fattening of table poultry is not confined to a few counties, but is distributed all over the country. Of course, certain departments have obtained a greater prominence in this respect than others, notably Normandy and the departments of Saône-et-Loire and Ain, but the fattening of table poultry is spread over a much wider area than in our own land. We cannot visit any of the towns which are scattered through the departments of France without seeing the vast amount of produce brought into market by farmers and their wives. We have visited the market of Louhans (Saône-et-Loire) when there were upwards of one thousand people standing with produce of one kind and another. True, it was a special occasion, being about ten days prior to Christmas, and the market was consequently much larger than usual, upwards of ten thousand fowls being offered for sale, but at ordinary periods the same state of things prevails to a proportionate extent.

NOT A SEPARATE INDUSTRY.

It has already been shown that fattening in this country is almost entirely a separate industry, the birds being reared by farmers and cottagers, and sold to higglers, who scour the countryside on behalf of the fatteners. To some extent the same plan is adopted in France, though it is by no means so universal. In the districts of La Bresse, La Flèche, and Le Mans, we have visited establishments where this system is followed, though in only one case on the same scale as carried out by Mr. Oliver at Heathfield in Sussex, for he, during the season, markets 2,000 chickens per week. Frenchwomen, especially in the districts named above, but elsewhere to a lesser extent, understand the fattening of poultry, and our observations show that the finest specimens are produced by those who do not market more than 50 to 500 per annum, the entire work of hatching, rearing, fattening, killing, and shaping taking place on the same farm. When this is so they are taken dead into market and there sold, either to dealers or consumers, the former purchasing for the Paris and other great markets. It will be seen that where this plan is adopted the profits of middlemen are reduced to the minimum, and whatever benefits accrue from the fattening system are retained by the producer, who, almost without exception, grows the food he gives to the fowls from first to last. To do this, however, needs skill in fattening, and that must be conceded to farmers' wives in the poultry districts. For first-class capons and poulardes fifteen to twenty francs are easily obtained, and we have seen the higher figure paid both at Bourg (Ain) and Le Mans (La Sarthe).

IN THE BRESSE DISTRICT.

Whilst it may be true that some dealers lay themselves out for the production of the best specimens—and as an instance of this we have visited at Le Mans an establishment turning out about 2,500 per annum, some of which are sent as far as Russia, and all realise high prices, the British Consul there informing us that he could buy a really well-fatted bird for less than

25 francs—it is evident that the more moderate-priced fowls are largely produced in this way. Live birds are bought in the various markets of the district, some in lean condition, and are fed up for about three weeks in cages holding about half a dozen, not very dissimilar to those found in Sussex, but more generally are half-fatted, the final process only needing about a week. In the Bresse district we have inspected several of these places, at the largest of which are marketed from 2,000 to 4,000 per week, the greater number from October to February, all of which are sent to Nice, Mentone, and the Riviera. But, it must be noted, they do not attempt to cater for the higher branches of the trade, as the prices range from four to eight francs per bird wholesale, according to size and quality. For live specimens prices vary from three to five francs, the rate being determined by amount of flesh already carried. Of course, these figures would not apply to capons or poulardes, but it is seldom that either one or the other are offered for sale alive, and when that is the case they are generally of a secondary quality.

CAPONS AND POULARDES.

Of late there have been doubts thrown upon the statement that caponising is practised to any extent in France, and we have made special inquiries as to this point. The result is that whilst it cannot be said that caponising is at all universal, there can be no question that it is widely adopted, and all the best specimens are so treated. During certain periods of the year women travel about the Bresse district from farm to farm, performing the operation at a given price per bird. An ordinary fowl will sell for six or seven francs (we are now speaking of the poultry districts, such as Louhans, Bourg, &c.), but a capon will realise ten, twelve, and up to twenty francs, according to its size and flesh. Even when a capon is not more than one-fourth greater in weight than a cockerel it will sell for more than twice the amount. A capon which we saw at the Bourg Show a few days before Christmas weighed nearly twelve pounds. These birds grow to a larger size than cockerels, but at the same time the flesh is regarded as much finer and more delicate. Poulardes are only so in name, as there has been no operation interfering with the ovaries. Care is taken to keep them from laying, and their flesh is the finest of all. A poularde will always command a higher price than a capon, even though the latter be greater in weight. That caponising is essential to produce the finest specimens of table poultry cannot be questioned, and to the same extent as in France its adoption should be advocated. The best method of caponising, for which special cases of instruments are sold by Spratt's Patent Limited, is fully described in " Poultry Keeping as an Industry for Farmers and Cottagers."

GRADES IN FRANCE.

In France the table poultry trade resolves itself into three distinct branches: first, young chickens, from seven to twelve weeks old; second, adult fowls; and third, fat (winter) poultry. So far as the younger chickens (*petits poussins*) are concerned, they are dealt with fully in another chapter.

METHODS OF FEEDING.

As to the methods of fattening adopted in France, it may be accepted that some system of increasing the quantity and quality of flesh is regarded as indispensable, and we can be content to accept this without question. The methods followed are: (1) feeding upon flesh-forming foods under ordinary conditions; (2) cramming by boluses of food, or *patons*; (3) cramming by a funnel; and (4) cramming by machine. Without exception the food is always prepared from finely ground meal, hard corn never being employed. Buckwheat-meal, maize-meal, and barley-meal are employed, but we have not met with or heard of an instance where ground oats, the staple food in Sussex, is used. With one or other of these is mixed skim milk, but in several districts of France the " whey " of curded milk is preferred, and in the Bresse country the latter is thought to give greater perfection in fattening and improve the quality of the flesh. Some of the fatteners are content to mix hot water with the meal, but all acknowledge that milk or whey is better. In one case we found that boiled potatoes are mixed with the food, and from the nature of that tuber its addition must be of great service. In some parts of France fat is added to the mixture, and in others not. It is customary when the older birds are to be fattened to divide them in accordance with their sex and kind.

Capons, cockerels, and pullets are placed into respective pens, as there is less danger of interference one with the other when this is done. Sometimes a fourth class is made—namely, whether the pullets have laid or not. In the case of ordinary cockerels or pullets, three weeks is sufficient time for fattening; but if capons or poulardes, they may be kept in the cages a couple of months.

First: Feeding upon flesh-forming foods under ordinary conditions.—This plan can never produce the best qualities of table poultry, as there is so much loss by exercise, and the birds are not under those conditions to induce rapid flesh formation. As a rule, this system is only adopted by those who sell to dealers, whose business it is to finish the birds off.

Second: Cramming by boluses of food, or *patons*.—This is practically the same method as adopted by the ancient Egyptians 4,000 years ago, as shown in Fig. 1, and it is probably the most general to-day. The food is made into a paste with sufficient consistency for it to hold together. There are two ways in which feeding takes place. In the one, a sufficient number of the *patons*, or boluses, each about the size of a little finger, are prepared, and the operator takes hold of the bird's head, either in the pen or out of it—in the latter case firmly gripping it between his body and left arm—opens the mouth with the thumb of his left hand, dips the *paton* into a vessel of whey or milk, inserts it into the mouth, presses it down the throat with his finger, and then carries the food into the crop by running his finger and thumb down the outside of the neck. The process is repeated until the crop is full. The second plan varies somewhat. The operator sits upon a stool, with a lot of the paste and a bowl of milk or whey before him. The bird is placed upon his knees, its legs being held by them, the left hand holds the wings, and he places a small quantity, after dipping it in the liquid, into its mouth, allowing it to swallow in the usual manner, there being no actual cramming. Both these methods are very simple. In some instances a combination of these two methods is adopted. The birds are kept in cages, to which are fitted troughs. After each meal the attendant goes round, feels the crop of each fowl, and then crams a few of the *patons* whenever doing so is thought desirable.

Third: Cramming by a funnel.—In this case the food is made into liquid form, about the consistency of ordinary cream. A specially made funnel, as shown in the accompanying illustration (Fig. 3), the nozzle of which is carefully turned to prevent injury to the bird's throat, is inserted into the throat until the orifice enters the crop, and the food is ladled therein until the crop is full, when the funnel is withdrawn. The quality of flesh produced in this manner is splendid, and we are glad to say that these funnels can be purchased at a reasonable price in this country, as they are simple in use and effective.

Fourth: Cramming by machine.—Several machines are made in France similar to the "Hearson" already described, and their use is increasing; but it is unnecessary to refer to them in detail. These observations would, however, be incomplete without reference to the Odile-Martin system, as adopted at the Jardin d'Acclamation. Paris, and elsewhere. A huge revolving cage, holding 210 birds, is employed, built in five tiers, and fitted with a lift, capable of being raised to any tier by the operator. In the lift is placed the "crammer," and as each bird is fed, a turn of the cage brings another into line. When the row is finished, the lift is raised to that above, and so on until all the work is done.

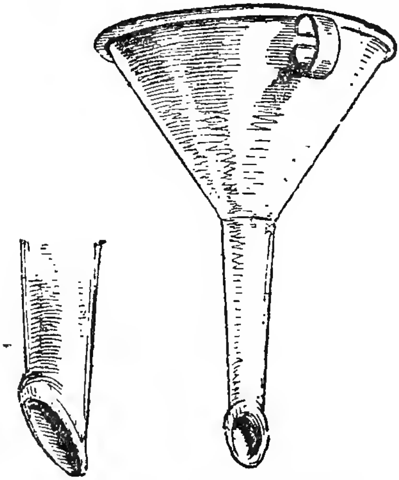

Fig. 3.—Funnel for Fattening.

Another method of feeding by liquid food is very primitive indeed—namely, by the mouth, as shown in Plate

VIII. The operator fills his mouth with the food, and inserting the open beak of the bird between the lips, forces the mixture down the throat by pressure of his breath. Such a system is not very widely adopted, and was more common formerly than is the case now. The results are said to be excellent, but this method is not one that we can recommend.

As mentioned in the Introductory Chapter, very little change has been made in French methods of producing table poultry within the last thirty years, and practically no progress has been made. At one time we looked to our neighbours across the Channel for the best methods and for the finest specimens, but that is no longer the case. Although very fine birds are placed upon the great markets, we do not think that they are equal to what were common at one time. The reasons for this are not easily discerned, but there is a tendency in all races of poultry to lose their virility, and in some of the French breeds this is probably the case. So far as we are aware only one new breed has been introduced during recent years, the Faverolle, and that is not a first-class table fowl. The natural conservatism of the French peasantry, and their indisposition to change, has made them less disposed to the adoption of new methods.

FOOD EMPLOYED.

The times of feeding and rules observed are practically the same as narrated in the previous chapter, and need not be repeated. We may mention that in some establishments where liquid food is used a mixing machine is employed for its proper preparation. In the Bresse country buckwheat and maize-meals are largely employed for fattening, whilst in Normandy barley-meal is regarded with great favour. At the Roullier-Arnoult establishment, near Houdan (Seine-et-Oise), the food for fattening consists of the barley-meal, thoroughly sifted, sometimes varied by fine Indian-meal, and mixed with skim milk, or the whey of curdled milk as a change. The mixture is made into a thick cream, and during the last three days of the process an ounce of diluted fat is added for every three birds, or a raw egg to every pint of the liquid used. The birds fed in this manner sell for two francs per pound, and are splendid in quality.

CHAPTER VII

POULTRY FATTENING IN OTHER COUNTRIES.

Belgium—The Sheds—No Cramming—Other European Countries — Austria—Hungary—Russia—Canada and the United States — South Shore Roasters—Australia.

BELGIUM.

ALTHOUGH the quality of fowls produced in Belgium is not so high as met with in some parts of France, the system of feeding-off is largely adopted. The best market chickens have all been subjected to a final treatment with the object of increasing the quantity and improving the quality of flesh. With the view of carrying out this system great markets have been established at various centres, whence the breeders or local dealers bring the live birds from over a wide area, and where they meet the buyers from the fattening establishments. As has already been shown, in England higglers collect for the fattening establishments, so that within their radius intermediary markets are not needed. The demand for good birds is so great that the interests of producers are adequately protected. The Belgian method has, however, considerable advantages, and especially where the place of fatting is distant from that of rearing, as is frequently the case in that country. It is entirely a question of convenience, and either system can be recommended. Certainly that followed in Belgium is successful. Markets equalise prices, and fowls can be graded to a greater extent than where the chickens are bought in driblets. There is no country with which we are acquainted where the class of fowls produced in each district has greater individuality than in Belgium. For that reason the class of birds brought into the markets is wonderfully uniform, nearly all of the same type or breed, and not such a promiscuous medley as would be found in an English market. That in itself is of benefit both to producers and fatteners.

THE SHEDS.

Reference has already been made to the fact that Belgian fatteners keep their birds in houses or sheds during the entire period of feeding. There are exceptions to this rule, but they are few in number. Our observations have shown that, as a rule, the fowls are not kept up the regulation period of three weeks, as in England, but are finished off more rapidly, especially in the case of younger birds. Sheds vary greatly, as might be expected, ranging from the rough outbuilding of the poorer peasants to the substantial brick buildings, well kept and scrupulously clean, we have visited at Merchtem. In the former, which are often ill-lighted, badly ventilated, and not very sweet, only a few birds are kept, but large quantities pass through the latter in the course of the year. So far as our inquiries have gone, the single-tier system is almost universal, and the cages are similar to those used in Sussex, as already described. These are placed very close together, merely allowing a very narrow passage between. The buildings are purposely kept dark, as it is thought that the more the birds sleep the more they will fatten. Great care is taken to keep them perfectly quiet during the time, so that they may not be frightened or agitated by the presence of strangers, in which respect fatteners in both France and Belgium are more careful than in Britain. Something may be due to suspicion as to the object which visitors may have, but it is unquestionable that in the case of chickens, ducklings, &c., they do not fatten properly if disturbed by strangers.

NO CRAMMING.

Generally speaking, in Belgium fowls are entirely trough-fed, and cramming, at least by machine, is not resorted to. A few may have tried the cramming system, and a larger number give additional boluses after the fowls have eaten as much as they desire, but the main dependence is upon the appetite of the fowls. Why this should be so is difficult to discover, but opposition to the introduction of mechanical devices to supplement natural methods is very strong. The Belgian peasant is reluctant to avail himself of the incubator and brooder, although they would enormously increase his production and cheapen his basal expenses, in some districts maintaining a race of fowls for sitting purposes, the hens of which begin to sit after they have laid eight or nine eggs, rather than adopt artificial methods of hatching and rearing. And the same feeling is manifested in regard to fattening. That good results are obtained cannot be questioned, for some of the fatteners are very skilful, but this explains the lack of finish in Belgian table poultry as compared with the best qualities of English and French, though we do not think that Belgium possesses a breed in flesh qualities quite equal to the Dorking or the Bresse of England and France respectively. Hand-feeding is resorted to in some cases, but generally for special purposes and not as a general rule. The methods adopted in Belgium are well worthy of study, and indicate what can be done without extraneous aid. Much information is given in the author's "Report on the Poultry Industry in Belgium." (1)

The food given is very similar to what is common in France, buckwheat meal being employed very largely. With this is mixed buttermilk, where it is available, and in other cases soured skim milk or the whey from curds. We explain later why sour liquid is used in preference to sweet. So far as we are aware fat is not employed to any great extent, which explains in some measure the lack of plumpness which characterises Belgian fowls. The methods of killing and shaping will be described later.

Poultry enters very largely into the food supply of Brussels and the leading cities, all of which is produced in the country. There is no part of Europe where the people evidence greater industry and thrift, and the amount of production is very large indeed as compared with the size of the country. Of late there has been a growing export of table poultry, chiefly to Germany, and the signs are that this trade will increase in the future.

AUSTRIA.

At some of the chief holiday resorts in Southern Germany and Austria very fine fowls are met with, sold under the name of "Styrian Poulardes." These are well finished and carry a large amount of meat, which is wonderfully fine in flavour. We have seen specimens in Vienna, but could form no opinion as to the breed. It is evident, however, that they are fatted, as they rival some of the best birds seen in England and France. They are produced in the Gratz district of Austria, amidst the Styrian Alps. We have not had the opportunity of visiting that district, or been able to obtain definite information as to the methods adopted. Whether they are trough-fed or crammed we are unable to say.

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(1) London: National Poultry Organisation Society, 1910.

HUNGARY.

These comprise the best qualities of table poultry met with on the Continent of Europe. Some time ago we visited a large establishment at Szabadka, in Southern Hungary, where 50,000 chickens were being fed off. The system, however, is very primitive indeed, and simply consists in caging for a few days, during which they are fed chiefly on maize meal, with which is mixed a little fat. As might be expected, the results are not very good. It is true that there is some increase in weight, with a slight softening of the flesh, but that is very yellow. Small in size of body, these cannot be regarded as good chickens, and have to be sold at a cheap rate. The chief interest, in this place, therefore, was the extent of its operations, and it was a remarkable sight to see so many caged in one huge building. But there are many difficulties to be overcome before improvement of the quality can be secured, such as a better class of fowl, change in the nature of the food, and the use of milk, without which good quality cannot be obtained.

RUSSIA.

Vast quantities of Russian poultry are imported every year. These are, as a rule, small and poor, although there has been a marked improvement of late years, due to the fact that instead of their being killed as picked up they are fed either in cages or enclosed yards. When in Russia we saw some very fair birds. The bulk, however, of Russian fowls have to be frozen, which has the effect of depreciating their food value, and they are dry and tasteless when cooked. The distances to be traversed from the centre of Russia compels the adoption of this system. The food employed in fattening is chiefly maize, millet and red buckwheat, ground into meal, and in some cases mixed with milk.

As recorded in the author's "Report on the Poultry Industry in Denmark and Sweden" (1), a beginning is being made in the former country, with the object of export to Germany, but it is as yet on a small scale.

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(1) London : National Poultry Organisation Society, 1908.

CANADA AND THE UNITED STATES.

The system of fattening which has been practised in Western Europe for centuries was practically unknown in North America ten years ago. Up to that period fowls were killed in the natural condition according to the season of the year. It is not improbable that this explains the preference in Canada and the United States for larger bodied races than were usual in Europe. In the absence of fattening, big-framed fowls are a necessity for table purposes unless the buyers are contented with lean and small-meated birds. What may be termed yard-fattening was adopted to some extent. By that is meant that the fowls are kept within small enclosures, where they cannot obtain much exercise, and are fed upon an abundance of food of a fattening nature, principally maize, which, whilst it is conducive to increase of weight, makes the flesh very yellow. This fact may account for the desire for yellow-skinned fowls in America, so strange to Europeans, who prefer white-fleshed and skinned poultry. But in that respect a change is taking place, and the appearances are that within a comparatively short period English and French ideas will prevail. If that should be so it would involve a great alteration in the races of poultry now kept in Canada and the United States. To that end the increasing popularity of the Buff Orpington and other white-fleshed breeds will contribute.

Recognition of the advantages which accrue from the fattening of fowls has led to adoption of the system. In this direction the pioneers on the American Continent were the Canadians, who realised that if they were to cater for the British markets their birds must be fed off. In this direction the Canadian Department of Agriculture rendered great service, widely disseminating information as to the methods which have proved so successful in Europe. The results have been very great, for, although the quality of American poultry cannot yet compare favourably with the best seen on this side the Atlantic, it has greatly improved.

SOUTH SHORE ROASTERS.

An interesting method of producing what are known as South Shore Roasters is described in the work just mentioned, but as there is no actual fattening, it hardly comes within our present outlook. Briefly stated, the birds are hopper-fed all through, which keeps the flesh soft, and they are killed when five to eight months old.

The majority of the chickens produced in America are trough-fed, that is, during the entire three weeks when in the cages they are supplied with food from troughs placed in front, as in this country, for the first few days. Cramming has not been adopted to any considerable extent as yet, but is coming more into use, and will doubtless become general in process of time. The question of the nature of the food given is one which will probably receive great modification. Our experience is that feeding upon maize (corn) does not yield the best results, and that is a food which is extensively employed for poultry feeding in America. In spite of the differences of climate, we do not think that the finest flesh can be secured by use of that grain, especially where white flesh is desired. Moreover, the fat which is produced by the use of maize is oily, and melts rapidly if the bird is roasted. Further, milk does not appear to be used to the same extent as with us, and, as shown later, it is an important factor in fattening.

AUSTRALIA.

Considerable attention has been paid to the production of table poultry in some of the Australian Colonies. We have also seen shipments of good ducklings and geese from the Antipodes. In one or two cases Colonial Governments are endeavouring to encourage the trade by purchasing from farmers, and taking all the risks inherent from exportation. The value of the fattening system is recognised, and in the packing stations established by the authorities it has been adopted, following largely upon British lines as to cramming, use of ground oats, or barley-meal, and milk. The enormous distances to be traversed if these supplies are shipped to England adds greatly to the cost, which fact led us to suggest the opening up of communications with South Africa, as there is a great market not more than half the distance from Australia, and avoiding the necessity of sending through the tropics. At that time there was very little direct communication between Australia and South Africa, but one result of the late South African War was to establish lines of steamers from the Australian ports to Cape Town, and an excellent market has been found there for poultry and other produce. From reports received, that trade is steadily growing, and it is likely to be a considerable time before South Africa meets her own requirements in this branch of food supply.

CHAPTER VIII.

KILLING AND SHAPING.

Killing and Plucking—Objectionable Methods—Paletting—Shaping—Methods of Shaping—French Shaping—La Flèche Method—Bresse Method—Stubbing.

KILLING.

THE common method of killing fowls is by dislocation of the neck, and there can be no question that in the hands of an expert operator this plan is most expeditious, and with the very minimum of pain to the victim. It is not easy to follow the method from a printed description, and we should recommend all who intend adopting it to learn the actual operation from an expert poulterer, as it is undesirable to make experiments even with dumb animals. However, as a guide to those who may not have this opportunity, we give a description of the process, together with a photograph of the operation (Plate IX.). The bird should be held firmly by the legs in the left hand, the head in the right between two of the fingers back of the skull, the back of the bird upwards. The legs are then pressed against the left hip, and the head laid against the right thigh near the knee. Next the fowl should be rapidly and firmly extended or drawn, and at the same time the head is suddenly bent backwards, by which means the neck is dislocated just below the junction with the head, and death immediately ensues, as all the large vessels are torn across. The operator must not be nervous, nor yet afraid, but perform the work firmly and expeditiously. Muscular contraction will take place for a few minutes, but if the operation is effective no pain is suffered. To prevent the fowl damaging its flesh, as it might easily do if put down, it should be hung up by a cord tied round the legs, and attached

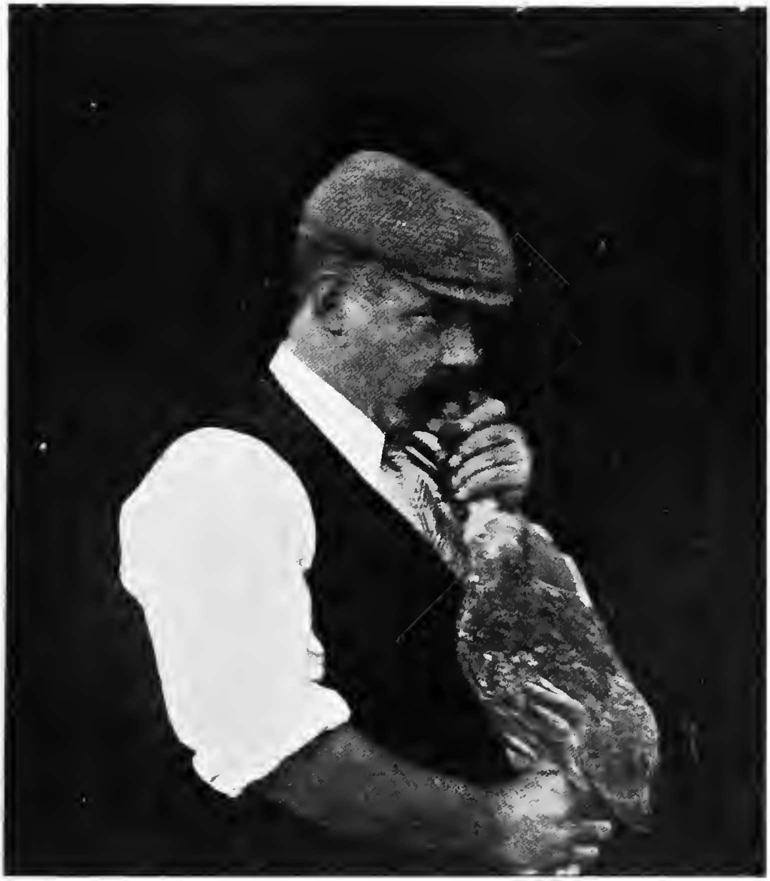

PLATE VIII.—CRAMMING BY MOUTH.

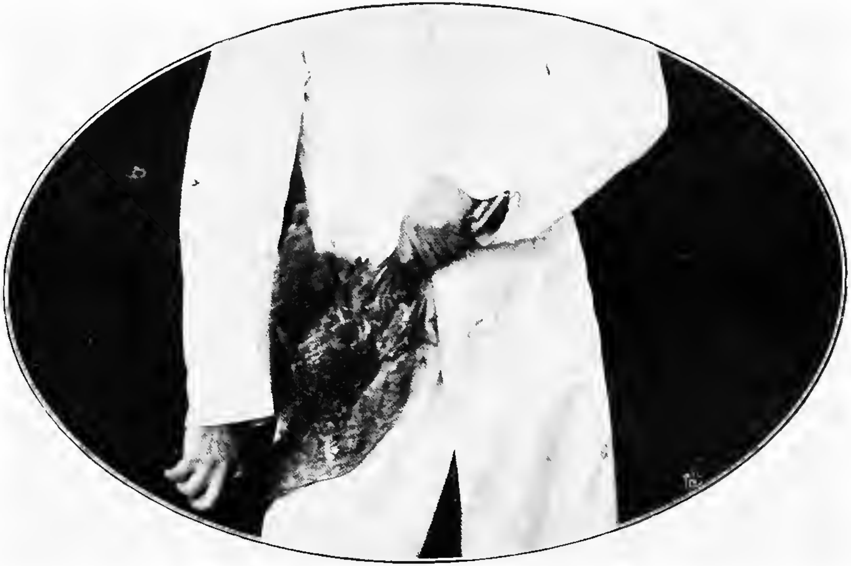

PLATE IX.—KILLING A FOWL,

Facing page 61.]

to a hook in the ceiling, or it may be held in the hands. It is always better to pluck whilst the fowl is still warm, as the feathers then come out very easily and the skin does not tear. Regular poulterers start plucking immediately the neck is broken, and there is no cruelty involved, as all sensation is at an end, the head being completely severed from the body. It is surprising how rapidly the work of killing and plucking can be accomplished. If the operator allows the head to hang down whilst he is plucking, the blood flows towards the head, and gathers in the neck, without making any mess.

OBJECTIONABLE METHODS.

Unfortunately, in some parts of the country methods of killing are employed which cannot but be regarded as cruel. We have seen the birds suspended by a cord tied to their legs, and a transverse cut made in the roof of the mouth, simply severing the veins. In this way they merely bleed to death, and may take two or three hours in doing so. What the sufferings of the birds are can scarcely be imagined, as no vital part is touched. Such a system is to be condemned, and should be abandoned if now in vogue. A similar way of killing is to be met with in France and America. There a pair of powerful scissors are used, with practically the same result, though the cut is somewhat deeper. If the fowls are for home consumption, chopping off the head may be resorted to, and this is both speedy and painless, but would be of no use for birds that are intended to be sold.

PALETTING.

In France there is another plan followed, which offers manifest advantages to the inexperienced, and we are glad to say that the system is coming more into vogue in this country. It is, also, very general in America. For this purpose a special knife is employed, and that sold by Spratt's Patent for one shilling is all that could be desired. It is fitted with a long, narrow blade, sharpened on both sides. The bird is taken, its legs tied together, and laid upon its back ; the mouth is then opened with the operator's left hand, and the point of the blade inserted into the slit which will be found in the fowl's mouth. One firm sharp cut is made right along the skull from back to front, piercing the brain most effectually.

To do this properly the knife must be forced right through to the back of the skull, and the brain cut along its entire length. The bird should be hung for a few minutes to allow the blood to drain away, when plucking can take place forthwith. If the operation is properly performed death is very speedy, and there is only momentary pain. Care must be taken, however, to cut the brain as described, or the bird's death will be a slow one. A fowl should always be starved from eighteen to twenty-four hours previous to its being killed, else there will be food remaining in the crop, which will prevent its keeping as long as it otherwise would, also giving an unfavourable flavour to the flesh when cooked. Too often this precaution is neglected, and we desire to impress its importance upon all poultry keepers.

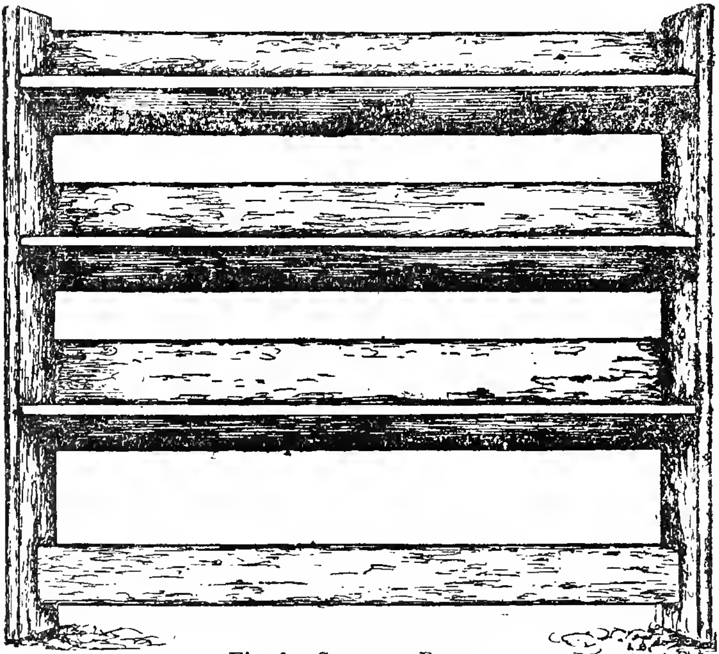

Fig. 4.—SHAPING-BOARD.

SHAPING.

There can be no question as to the desirability of shaping fowls in order to give them the best appearance, and the returns obtained by properly shaped birds are greater than when they are sent to market in a rough, unprepared condition. This process partly explains why Surrey fowls look so much superior to others. The system, moreover, is so simple that it can be adopted at a very small expense, shaping-boards being easily made by almost any person. We give here an illustration of a shaping-trough (Fig. 4), and also (Plate X.) of board filled, built in three rows, and capable of holding 30 to 36 birds at one time. For smaller producers it can be made with one row, and the cost of material for construction of the larger size would not be more than four shillings. Each trough is made V-shaped, the front of which is rather narrower than the back. One of the best sizes is to have the back board 6 inches wide and the front 5 inches.

METHODS OF SHAPING.

The *modus operandi* is as follows: As soon as the birds are plucked, which should be done carefully and thoroughly, the hocks are tied loosely together, so that the legs are flat against either side of the breast. Before doing so, however, some of the more skilful fatteners draw the breast meat upwards by means of the hands, which undoubtedly improves the appearance of the bird, though it must be done carefully to prevent breaking the skin. The operator strikes the stern against a wall, thus flattening and making it fit the shaping-trough more easily. Each bird is laid in the trough breast downwards, with the neck and head hanging over the front. The first bird is pressed firmly against the end of the trough, and a glazed brick or weight laid by the side to keep it in position. When the second and succeeding birds are placed in the trough, the weight is moved along until quite full. It is necessary that they should be packed firmly and tightly together in this way. Next a loose board, 4 inches wide and the length of the trough, is laid upon the backs of the fowls, just behind the wings. Upon this are placed three or four heavy glazed bricks, or weights (56lb. for preference), and the fowls are allowed to remain in this trough for several hours—in fact, until they are quite cold and set. When taken out they have the shape and appearance desirable for marketing purposes. In these matters it is desirable to know the market demands where produce is to be marketed, for "the eye is the inlet to the pocket" as well as to "the soul." We were recently told by a Gloucestershire farmer that excellent fowls sent up to London could not be sold so well as Sussex birds, though of equal quality, simply because they were not shaped properly.

FRENCH SHAPING.

Although French systems of shaping are practically unknown in this country, it is desirable to refer to them, as for the finer qualities of fowls we think they might be adopted in many cases with advantage. The first is that most common in France. In this case a board, from 15 to 18 inches in length and 5 to 8 inches wide, in accordance with the size of the fowl, is used. At either side of this board, which is usually 1 inch thick, are driven four pegs at equal distances. When the bird is killed it is quickly plucked, and the head, legs, and inner bowel most carefully washed. It is then laid breast downwards on the board, and the back pressed in with the hand, causing the ribs to crack slightly and loosening the breast muscles. When this is done the fowl does not again return to its normal shape, and the meat being forced up on to the breast of the fowl, gives that flat appearance which is so desirable. The hocks have already been tied with the wings through them. When placed in position upon the board the rump and crop are supported by pads of stout paper, or small blocks of wood, covered with cloth, in order to keep the fowl level. A strong linen cloth (Fig. 8), which is sometimes first dipped in milk, and is the length of the bird's body, is very tightly drawn over the back, and the four tapes on either side, provided for the purpose, are tightly attached to the pegs of wood, the head and neck hanging down at one end. The whole is then well drenched with cold water, and left to set. Such a system, though apparently giving greater trouble, is very simple, and brings out all the best qualities of a fowl. These shaping-boards can be made very cheaply, in fact at the cost of a few pence each, whilst the lady members of any household can make the linen cloths, and they are of course used over and over again. The appearance of these fowls is shown herewith (Plate XI.), representing prize La Flèche at the Paris Show, where we photographed them.

SHAPING OF BRESSE FOWLS.

Another system, which is found almost exclusively in the Bresse district of France, is peculiar to that country, and to it is due the unique shape of Bresse fowls. Small poultry keepers and great fatteners alike adopt this method. Every fowl, no matter how small its price, is prepared in accordance with the following system. For this purpose two cloths are used, the first a piece of fine linen, and the second an oblong piece of coarse linen or canvas. The shape of the former does not so much matter, but the latter requires to be of a certain make. The specimen we brought from France is 17 inches long by 13 inches wide. So soon as the fowl is killed it is plucked, and whilst warm, wrapped, first in the fine linen, and second in the coarser material; the latter is then drawn very tightly either by tapes or cords passed through holes provided for the purpose, or is sewn up with fine string. These cloths envelope it completely. It is stitched first from the stern up to the hocks, and then along the body to the neck, the legs being laid on either side of the breast and encased with the cloth. The fowls are dipped in cold water and allowed to remain in this position for 24 to 36 hours. When taken out they have a sugar-loaf shape, the head being at the apex and the stern at the base. The effect of this system is to smooth the skin and give it a very pleasing appearance, as will be seen by a reproduction of a drawing (Plate XII.) after a photograph taken at the Paris Show.

Whilst it is true that the Sussex system first described is probably all that is necessary in this country, still, at the same time, for those who intend to go in for the higher grades of table poultry, we are inclined to think that the French methods here spoken of would be a novelty and appreciated by consumers, though English shopkeepers may be at first too conservative to adopt this view.

STUBBING.

Whatever the system adopted of shaping, it is a most important point that the bird shall be plucked carefully, and it is customary in some parts to employ the services of what are called "stubbers." If any of the feathers, and especially the short quills, are left in the flesh, they will, of course, materially depreciate the appearance of any fowl. We desire to urge upon every producer the duty to himself and the industry at large to turn out fowls in the very best manner possible. Some poulterers are very fond of breaking the breast-bone of fowls. This we think is a most objectionable method, and it is certainly one that ought never to be adopted by the producer. We have often seen a plucker strike sharp blows with a stick upon the back and breast of the fowl, but not sufficiently hard to break the breast-bone, the object of doing so being to give the fowl as plump an appearance as possible. As a rule all Surrey and Sussex fowls are singed immediately after being plucked, and stubbed, and when properly done there is no objection to this custom, as it is simply clearing the skin of surplus hair and feathers. For study of the recognised English market styles a sojourn in the neighbourhood of Heathfield and Uckfield (Sussex) or Boston (Lincolnshire) would prove valuable to a practical mind, and a visit to Wexford (Ireland) and their surroundings would also serve a more useful purpose than many explanatory volumes.

CHAPTER IX.

MILK CHICKENS AND BROILERS.

Milk Chickens—Weights—Demand—Suitable Breeds—Rearing—Feeding—Extent of Trade—Preparation—Is It Profitable?—Squab-Broilers—Rearing the Squabs.

In France, Germany, and Belgium there has been for many years a large trade done in small chickens, which are found to be in considerable demand at certain seasons of the year, and sell readily at excellent prices. It may be explained that these birds do not carry a great amount of flesh, though more than would at first be expected, but they are served whole, one to each person, and there can be no doubt that they form a very dainty dish. In this country the demand for them has been increasing, more especially in the West End of London and two or three leading centres of population in the country. Of late the trade has assumed much greater proportions, and we know one breeder who in a season marketed about 2,000 birds which realised an average of from 1s. 6d. to 2s. each. And a well-known poultry breeder recently sold a lot of January hatched chickens, when about five weeks old, at 2s. 6d. each. These are special prices, as considerable quantities now come from Germany at much cheaper rates. Whilst, therefore, this trade cannot be expected to assume large proportions, still it is desirable that particulars shall be given as to the preparation of the birds, because such a demand will help towards successful results, in some cases at any rate. The names given to these birds vary. In Britain they are called " Milk Chickens," and in Belgium also (*poulets de lait*), but in France the term employed is *petits poussins*, whilst in America they are termed "squab-broilers."

The following extract is from an article by the author in the " Journal of the Board of Agriculture," May, 1909 :—

WEIGHTS.

" These smaller Hamburg and Belgian birds weigh 6 to 8oz., whereas the large Belgian, English and French run from 8 to 12oz. Across the Atlantic what are called squab-broilers are still larger, weighing 12 to 16oz. each. These differences in weight are to some extent due to the class of fowl used, but also to the way in which the birds are fed. When the entire lot of chickens hatched are fattened as milk chickens, they may be killed earlier than where cockerels alone are selected, for in the latter case time must be given for the sex-characters to appear, more especially the comb.

DEMAND.

" The demand for these small birds is not very large, though it is greater than the supply, and is chiefly restricted to the wealthy classes. The limit of consumption has, however, not been reached, though it cannot be expected that the trade will ever attain large dimensions, for, regarded merely as an article of food, these milk chickens are very costly. The same, however, may be said of Bordeaux pigeons, larks, etc., which maintain their position on all markets. Of late the price of milk chickens has fallen somewhat owing to the cheaper supplies from Hamburg. At one time wholesale rates were from 1s. 6d. to 2s. 6d. each, but 1s. 2d. to 1s. 10d. is now the range, with a few exceptional specimens selling for 2s. Paris prices are higher than in London, probably owing to the fact that Hamburg *petits poussins* cost more to send there, and are not quite the size of French birds. Still, at the figures named, the margin of profit is considerable.

"The production of milk chickens is not an industry to be undertaken by itself, because, being a season trade, it would occupy less than half the year, and also because the cost of production is much less where this branch is only part of the operations. Attempts have been made by means of large plants to turn out *poulets de lait* on a wholesale scale. One of these has been described by Madame Van Schelle in her paper read at the Second National Poultry Conference, held at Reading in 1907, but the establishment described was not continued, as it does not appear to have been a financial success. Difficulties arise when operations are intensive, and the heavy establishment expenses involved mean a great increase in the cost. Hence, so far as experience is available, there is no encouragement for taking up the work on a large scale. My observations in France, Belgium, Germany, and America have shown that the breeding and rearing of milk chickens can be made profitable if it forms part only of the work of the holding, but that if it is carried on by itself the results are likely to be very doubtful. At Haeltert, the place described by Madame Van Schelle, the chicks were reared artificially on shelf brooders, heated by pipes, a system which has yet to prove its practicability. Birds, however, were grown in two months to a weight of 2¼lb.

"*Suitable Breeds.*—A very important point in the production of milk chickens is that of the breed of fowl used for this purpose, because to a large degree upon that depends the rapidity of growth and the time when the birds come into fleshy condition. For this reason the races which are at a later period of life the finest in meat qualities are not the best for milk chickens, in that they are slower in growth than the light-bodied, non-sitting, egg-laying breeds. This is especially the case with the heavy general purpose fowls. It is, however, almost entirely a question of size of body required in these birds. In France, as we have already noted, the weights are from 8 to 12oz., for which Houdans and Faverolles are largely used. The lighter races are not much seen in that country. At one time the small Campine and Braekel were extensively used in Belgium as milk chickens, reaching the killing point at five to six weeks, but to a large extent they were the cockerels killed off as soon as distinguishable. More recently the heavier Malines fowls have been bred specially for that purpose, and as they are somewhat slower in growth, and attain a larger size, the Belgian *poulets de lait* are pretty much on all fours with the French, or even larger. The German chickens appear to be of a light-bodied type, that is, of the small races of fowls which are general throughout Western Germany and the Netherlands, though I am informed that Orpingtons and Wyandottes have been introduced into Hanover for this class of poultry production.

" In America what are known as squab-broilers are largely the product of large egg farms where White Leghorns, or other breeds of a similar type, are kept. Generally speaking, the birds which are best as egg-layers are poor in flesh qualities, except at one period, that is, when five to eight weeks old, just when the combs of the cockerels have sprung. As, however, Leghorns have yellow flesh and legs, they would not be so acceptable upon European as they are on American markets. On these huge egg farms, of which that at Lakewood, New Jersey, may be cited as an example, thousands of laying hens are kept, and as the birds are retained for not more than two seasons, the number of chicks hatched annually to maintain the stock is very large. At Lakewood 7,000 hens form the total flock, and, therefore, 3,500 pullets are produced each year to replace the two-year-old hens thrown out. Hence 8,000 to 9,000 chickens must be hatched for that purpose alone, of which half will probably be cockerels. The profitable sale of these is all-important, and as the price realised for squab-broilers has been from 3s. to 6s. per couple, instead of cockerels costing more than their sale value, they have left a handsome profit. Equal results could not be obtained with operations on a small scale, for which reason it is evident that those who can make the most money from the rearing of milk chickens are, apart from general farmers, such as can use what may fairly be termed surplus stock for this purpose.

"*Rearing.*—For the first few weeks the chickens are fed and reared in the usual way, either by natural or artificial means. With the lighter breeds, such as Leghorns, Minorcas, Campines, &c., the sex may be distinguished at from four to five weeks old, when the cockerels should at once be separated from the pullets, and fed specially for a fortnight prior to killing. During this period they should be in a small, well-lighted house, and are better if not allowed out in the open, except for a short time every day.

"*Feeding.*—The food should consist of oatmeal or ground oats, alternated with cooked rice, both of which should be prepared with soured skim milk, and a little pure fat, say, half a pound per 100 birds per diem, should be mixed with it. In addition a very little small grain, wheat for preference, may be scattered among cut chaff on the floor once a day to induce exercise. Grit and greenstuff should be supplied in abundance. It need hardly be said that neither artificial heat nor the natural care of the hen is required during this final period, as the springing of the comb is a sign that the maternal care is no longer needed. This feeding brings the birds into plump, fleshy condition. If feeding is prolonged the first moult takes place, during which the flesh will be reduced, and the lighter breeds will not come into as good condition again. With the heavier races the sex cannot be distinguished so early, and that is why they are killed later, when they are larger in body.

"In America squab-broilers are fed during the last ten to fourteen days on a mixture of one-part Indian meal and two-parts bran, seasoned with a little salt and pepper, made into a wet mash, to which is added about ten per cent. of cotton-seed meal and some cheap treacle or syrup. In this way a deep yellow skin is secured, but, as already stated, that is not desirable on our markets. It would appear that milk is not used."

EXTENT OF TRADE.

Mr. Devereux, of Shepherd's Market, informs us that the demand has of late years greatly increased, and the period of the year when *petits poussins* are sold is from early in April to the beginning of July. After that time they are never asked for at all. The English supply has not grown to any extent, and he has had to depend largely upon supplies from Hamburg, where this trade has been largely developed of late years. His experience is that English birds are vastly superior to those from abroad. The chicks obtained from France vary very much in size, being chiefly legs and wings, and not having nearly the same amount of breast meat as those bred in this country. As a rule West-End customers insist upon all the birds they buy being of the same size, and conquently greater trouble is experienced in sorting those from abroad, as they send all sizes and ages to make up the number required. As a rule the majority of French birds are too large in size. We may here mention that inquiries in Paris have led us to the conclusion that the best specimens do not come over here, but command higher prices in that city, and so, of course, are marketed there. This will explain Mr. Devereux's preference for English-bred *petits poussins,* but the fact is important as showing what can be done in our own land. The best age, in Mr. Devereux's judgment, is when they are from three weeks to a month old, before any quantity of bone has developed, when they prove to be very dainty morsels indeed. The great point in connection with *petit poussins* is that they shall be small in bone, and any variety of fowl which is fine in this respect would be suitable for the purpose, though rapidity of growth is of equal importance.

PREPARATION.

The chickens should be starved for a few hours before killing, be carefully plucked by the producer, and sent to market packed in boxes, but they must not be drawn. It is necessary that they shall be fleshy, with plump breasts, or they will look scraggy, and fail to realise anything like the prices of better specimens. In the months before named the average retail value is from 1s. 6d. to 2s. 6d. each. We have, however, heard of instances when very much higher figures were paid for an even lot of chickens. When received by the retailer they are drawn and trussed, the wings being sewn, and a needle stuck right through the body—in fact, trussed more like a pheasant than a chicken. It is usual to place a vine-leaf inside the body, the acid of which improves the flavour.

IS IT PROFITABLE?

The question for consideration is how far this trade is profitable on its own basis. We are inclined to the opinion that as an outlet for surplus cockerels, which are killed off as soon as the sex can be distinguished by the springing of the comb, it is very profitable.

It may be contended, as in fact it already has been, that there is a great waste in killing chickens at so early an age, but this we fail to see. The trade in milk chickens does not interfere with any other, and is an addition altogether, whilst if the birds are destined to die we do not see that it matters much whether they are killed at one month or three months old. The trade in these chickens can never be expected to assume very large proportions, but it may be, at any rate, one which will grow much greater than at present, and for those who have the necessary skill in early rearing, it will give an excellent return for labour and food employed. It can easily be seen that 1s. 6d. to 2s. for a chicken a month or five weeks old affords an excellent margin of profit, and even though the number produced be comparatively small, yet the returns are quick. To succeed in this, as in every other branch of table poultry, it is essential to breed from suitable varieties, and Buff Orpingtons are excellent for this purpose, as are Faverolles.

SQUAB-BROILERS.

In America similar birds, though somewhat larger than are usual in Europe, are produced to a considerable extent. These weigh from 1½ to 2lb. the couple, and they are in large demand on the eastern markets. The reason for this greater size is that they are not specially produced, but are the surplus cockerels from the great egg farms in New Jersey and adjacent States. The great majority of those marketed are Leghorns, which by their rapidity of growth come very early into fleshy condition, that is, just when the comb shoots—practically the only time in the period of their existence when they are good for table purposes.

The broiler business in America, however, extends beyond this stage, and there is a large demand for birds up to 3½ and 4lb. the pair. Mr. John H. Robinson, in his work entitled "Broilers and Roasters," says:

"The ordinary small broilers—the size most in demand during the greater part of the year—weigh, when dressed, plucked, but undrawn, and with head and feet on, from 2 to 2½lb. the pair. They may weigh less or more, but this is the desirable range of weights; that is, a pound to a pound and a quarter apiece. The desirable average

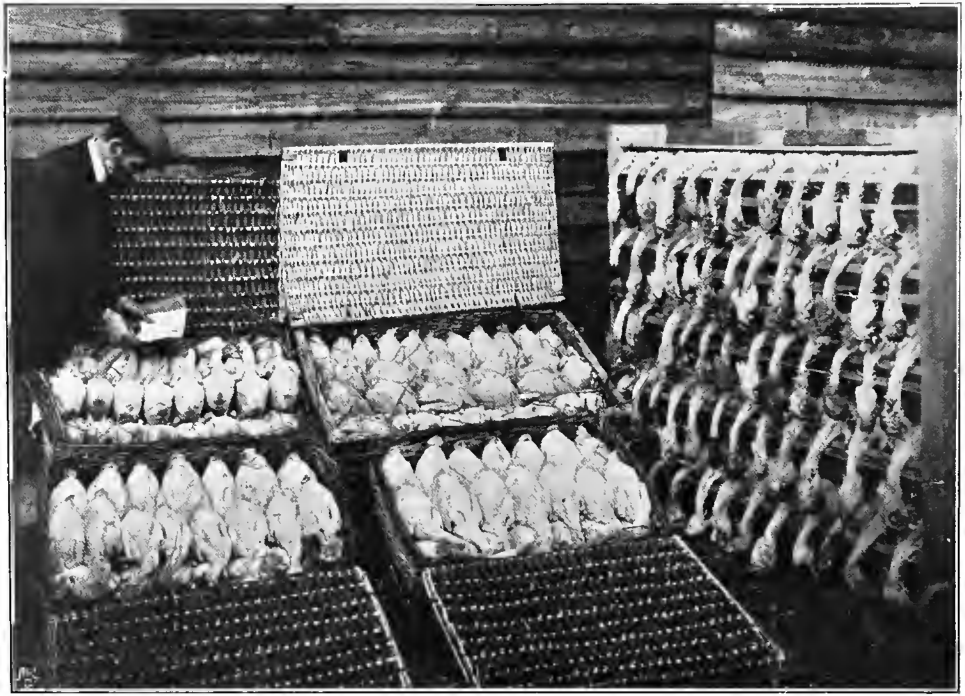

PLATE X.—Fowls in Shaping-Board and Packed in Baskets.

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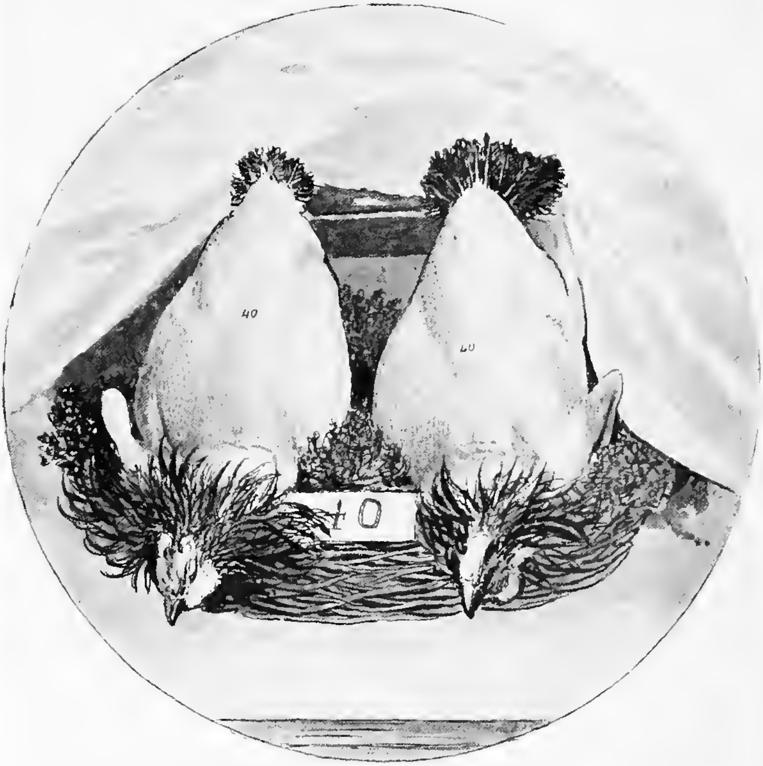

PLATE XI.—LA FLECHE DEAD FOWLS.

weights for large broilers are 3 to 3½lb. to the pair ; that is, a pound and a half to a pound and three-quarters apiece. They may go to two pounds or more each, but when the desirable weights are exceeded they will not, as a rule, bring as high prices per pound, so that there is seldom gain, and may often be loss, by marketing these larger chickens as broilers."

REARING THE SQUABS.

As to the methods of rearing and feeding, the following notes are summarised from an article by Mr. James Rankin, of South Easton, Mass., a well-known American poultry breeder :—

No food is required for the first twenty-four (or even thirty-six) hours. Then keep granulated (pinhead) oatmeal in a little trough always within their reach, giving soaked bread-and-milk three times a day, until they are three days old, when they may be given a little chopped meat once a day. An excellent bread may be made for them by combining equal parts of ground oats, corn-meal, middlings, and ground meat, baking the mixture in an oven. Stale bread of any kind, crackers, or other cereal foods are also excellent. As soon as the chicks are able to eat wheat and cracked corn they will require but little labour in feed, as it will be necessary to give them only a morning and night meal of soft food. The soft food may consist of corn-meal, ground oats, and ground meat, equal parts, scalded; but any variety, such as cooked potatoes or turnips, chopped cabbage or onions, milk or anything they will eat, may be given with the soft food at noon.

Broilers are sold entire, the feathers only being removed. They must be dry-picked, the pin-feathers removed, and the skin free from bruises or rents. Pack in boxes or barrels and ship by express. They cannot be sent to market alive in cold weather, as they would perish. The cost per pound of broiler for food only is 2½d.; but the cost of the eggs for hatching, fuel, and warmth, labour, and interest on investment must be considered in the cost. If well fed the chicks will double their weight every ten days until they are forty days old. If forced, they will weigh a pound each when six weeks old, and two pounds at ten weeks. The space used on the broiler farms under shelter is 5ft. by 7½ft., with yards 15ft. by 16ft. for 100 chicks. They never leave this space until they are sent to market. The brooder is one yard square. As the brooder-house is warmed by the heat that escapes from the brooders, if the chickens grow too large for the brooders (by which time they are usually well fattened) they do not all go under the brooder.

CHAPTER X.

FATTENING DUCKS.

*Duckers in Buckinghamshire—An Industry for Small Holders—The Duckling Season—Provision for Rearing—Eggs for Hatching—Feeding—Diseases—Age for Killing—Duck Farming—*35,000 *Ducks—Rearing on a Large Scale—American Methods.*

For a long period of time the Aylesbury district of Buckinghamshire has been famous as the centre of a great industry in the hatching and rearing of ducklings. From that vale have emanated birds of a character which has made the Aylesbury duck one of the most valuable we possess. Its special qualities of rapid growth and richness of flesh, more especially the former, have given it a popularity which is unquestioned. During recent years the industry has increased and spread into the adjoining counties of Bedfordshire and Oxfordshire, and it is sometimes contended that the more important branches of the industry are now outside the area named. The villages of Haddenham and Weston Turville in Buckinghamshire, and of Stanbridge, from whose station vast quantities are dispatched every year, Eatonbray and Great Billington in Bedfordshire, are centres of large duck-producing districts, and the "quack, quack" of these birds is to be heard on all sides during the spring of the year. The duck fatteners, or "duckers" as they are called, do not as a rule keep breeding stock, but buy eggs from the farmers in the district, who receive a considerable benefit in this way. The amount of space taken up by the actual rearing of the ducklings is very limited. For instance, at Stanbridge, one ducker who kills about 1,300 to 1,900 birds in the season does all the work upon what cannot be more than one-fourth of an acre. At Eatonbray another ducker we visited had 2,000 ducklings in various stages of growth and from 200 to 300 hens sitting upon eggs. This man has killed as many as 6,000 in a single year. But this number is exceeded by a farmer at Great Billington, who has killed close upon 10,000 ducklings in one season. From the evidence obtained it is clear that, whatever poultry-keeping may be in other parts of the country, the duckers of North Buckinghamshire and Bedfordshire find it a profitable business.

AN INDUSTRY FOR SMALL HOLDERS.

In a report by Mr. Aubrey Spencer to the last Royal Commission on Agriculture,* relating to the condition of agriculture in the Vale of Aylesbury, there is some interesting information as to the duck-fattening industry in that district. It appears that the persons who engage in duck-fattening in Aylesbury and the surrounding villages are generally men of the labouring class or small village tradesmen. The number of ducklings reared and sold annually by individuals varies from a few hundred to several thousands. The ducks, which are always of the large pure white, or Aylesbury breed, require constant care and attention all through the spring months, and no one who rears a large number would, during that period, have time to engage in any other work. But where a comparatively small number is reared, the female portion of the household perform most of the necessary labour. Many of those engaged in rearing are said to find time to carry on some other occupation, such as shoemaking, in the autumn months, or, at any rate, to earn a little extra money by harvesting and occasional agricultural work. Mr. Spencer was told that in the village of Weston Turville eleven men fattened 1,000 ducks apiece annually, and that about 16,000 or 17,000 were sent from there to London in a year. As mentioned already, the duck fatteners do not themselves keep stock ducks, but buy eggs from farmers or others who keep breeding ducks, so that the breeding and rearing are in different hands.

THE DUCKLING SEASON.

It is a main object of the duck fattener to bring out as many young ducks as he can get ready for the market in February or early in March, when the game season is over, and the highest prices are obtainable for ducklings. The season for ducklings commences in February and continues till about the end of August, the prices falling as the year advances. In April, as much as £1 1s. a couple is occasionally obtained for ducklings, and one fattener at Weston Turville informed Mr. Spencer that in 1894 he had obtained the very exceptional price of £1 4s. for a couple, which was the highest figure he had ever reached. The average price in April is more usually about 12s. or 14s. a couple. The carriage and salesman's commission for the ducklings (5 per cent.) are averaged at about 3d. per bird, and duck-fatteners commonly estimate that, after deducting carriage and commission, they receive on the average about 3s. 3d. a duck. Mr. Spencer, however, is inclined to think that this estimate is rather under than over the mark, for in August, when he visited the district, prices were still as high as 6s. to 7s. a couple.

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* "Report by Mr. Aubrey Spencer (Assistant Commissioner) on the Vale of Aylesbury and the County of Hertford." London: Eyre and Spottiswoode.

PROVISION FOR REARING.

As regards accommodation, it appears that a small back-yard or garden attached to a cottage affords sufficient room for the bringing-up of some hundreds of ducklings. Some shedding is required for the protection of the young ducks from the weather, and the ground is usually divided by planks into pens so as to keep the ducklings of different ages apart. As a rule, the young ducks do not go into water, but are supplied with water in troughs or shallow vessels.

EGGS FOR HATCHING.

Contracts are usually made between the duckers and farmers for a supply of eggs right through the winter, and the average price is from 3s. to 3s. 6d. the dozen, but during periods of scarcity 10s. to 12s. per dozen is often paid, and we were informed by one breeder that he has paid as high as 15s. per dozen. Hatching operations commence in October, and to secure eggs at this period young ducks, bred early for the purpose, are mated with older drakes. In this way, as the two-year-old ducks do not commence laying until a later period, a constant supply of eggs is obtained, and not much harm would be done if the ducklings were killed off when a few weeks old. The eggs are set almost entirely under hens, and when the ducklings come out they are allowed to remain with the hen for about a week, kept in small coops, though frequently they are taken sooner from the hens, and sometimes they are kept in the cottage itself. Then they are removed, placed in roomy sheds which are usually divided into compartments, and must be well lighted and airy. We have seen in a single shed upwards of 2,000 ducklings, divided into flocks of about 25 each by **L**-shaped boards, so as to prevent overcrowding. As they grow these places are increased in size, and then they are put out into open runs with sheds attached, from 100 to 200 in a flock. On one large farm two long, low sheds are employed, divided by 18-inch boards into a dozen compartments, each of which holds 100 birds. The ducks are allowed out when younger three times a day for feeding, at 7 a.m., 12.30 p.m., and 5 p.m., then put back and penned off in the manner stated. They are not given any water for swimming as a rule, but there are exceptions to this arrangement. Water for drinking is given in troughs, which are half-filled with a special gravel brought from Long Marston in Buckinghamshire, and which is regarded as having some special qualities to recommend it. It is inexpensive, costing 1s. 6d. per load, without cartage. Similar gravel can be met with elsewhere, and this material is essential to success in duck rearing.

FEEDING.

The food is, of course, varied a little in accordance with the individual ideas of breeders, but, as a rule, for a few days it consists of hard-boiled eggs, chopped fine and mixed with bread-crumbs, but some breeders use at this period in addition toast soaked in water. After three or four days of this feeding the birds are put upon rice, which is properly boiled, and for this purpose Burmah rice is preferred, as it has more feeding in it. Next they are given rice and toppings, which is the local name for fine sharps or middlings. During the later stages of the process they are fed upon barley-meal and toppings, and finally upon barley-meal and fine greaves, or tallow scrap cake, or boiled rice mixed with greaves, though on one farm horseflesh and mutton are used for the same purpose. It is customary to give boiled nettles mixed with the food at various stages of their growth, this having been found most helpful in keeping the blood cool.

DISEASES.

As might be expected under such wholesale conditions, deaths are by no means infrequent, and there is in this respect a good deal of difference in accordance with the seasons, but we are informed by one who breeds very largely that upon the average he was enabled to market 85 per cent. of the ducklings hatched, which seems to be an excellent proportion. One of the greatest troubles met with is what is known as "soft bill." Where this is present the young ducklings are unable to break their way out of the shell, or even if they succeed in doing this they die at an early age. High feeding may cause this trouble after the birds are hatched, but we think the chief cause is in-and-in-breeding and the use of immature stock. Strange though it may seem, even in the duck-breeding districts attention is not paid as it ought to be to the use of well-grown breeding stock and to the systematic introduction of fresh blood. Several obvious laws in breeding are neglected by those whose interest it must be to keep them prominently in mind.

AGE FOR KILLING.

The birds grow very rapidly, and what are known as ducklings, that is, birds that are killed before they have cast their first feathers, are ready for market in about from seven to nine weeks, when they weigh 4lb. to 5lb., and this is undoubtedly the most profitable part of the business. There is, however, a number kept until they are fourteen or fifteen weeks old, when they scale much more, but do not realise so much as younger specimens. The object is to get them marketed as rapidly as possible. The season lasts from February to July, that is, when game is out of season, and a visit to the district after June would show that it was almost entirely denuded of ducks, save those retained for breeding purposes. Ducklings do not receive any special shaping, but if packed tightly they assume that flat form usually seen. The prices obtained vary in accordance with the season, and the following are prices for well-grown ducklings given us by Messrs. Brooke Bros.: January, 6s. to 10s. per couple; February, 6s. 6d. to 11s.; March, 9s. to 18s.; April, 7s. to 12s.; May, 6s. to 8s.; and June, 5s. to 7s. The kind of duck bred in Buckinghamshire and

Bedfordshire, without exception, is the Aylesbury, no other equalling it for rapid growth and flesh properties.

Artificial methods of hatching have not been generally adopted in the ducking districts, though of late years incubators have gradually come into use, chiefly from indisposition to adopt new methods, and hens, of a large, roomy type, are employed for the work. Full particulars of this system are given in the author's book "Poultry Keeping as an Industry for Farmers and Cottagers."

The question is frequently asked, when reference is made to the duck industry of Buckinghamshire and Bedfordshire, whether there is not some special climatic or soil influence in that part of England which gives it an advantage in this direction. In reply it may be stated that there are hosts of other places in different parts of the country where ducks could be produced as easily and successfully.

DUCK FARMING.

The extension of duck rearing on larger lines to other parts of the country than the South Midlands has been very marked of late years, and large quantities of these birds are now being reared and fatted in Eastern Anglia, more especially Norfolk, Suffolk, and the southern part of Lincolnshire. On some of the establishments around Diss 10,000 ducklings and upwards are raised annually on pretty much the same lines as in Buckinghamshire. There are other parts of the country also where extension is taking place. One interesting experiment in Suffolk promised to yield very considerable results — namely, that young ducklings are bought from a week to a month old and then fed off by the purchaser, who does not attempt to hatch any of the birds.

35,000 DUCKS.

The chief development, however, has been in North Lancashire, due to the persistent efforts of a farmer—Mr. Peter Walsh—living near Fleetwood. This enterprise has commanded a large amount of attention, as it has been conducted for something like eighteen years, thirteen of which were on a general farm near Poulton, and the last five upon a smaller occupation of about 25 acres near Fleetwood. Mr. Walsh is by far the largest duck breeder in the United Kingdom, and probably is only exceeded by one or two in the whole world.

The system adopted is simple in the extreme. No breeding stock whatever is kept upon the farm, and all the eggs are purchased. As Mr. Walsh hatched during a recent year 35,000 ducklings, it will be seen that something like 60,000 eggs were required for this purpose. Hatching is entirely by artificial means, and 80 incubators are employed, with a total capacity of 14,000 eggs. These are accommodated in one of the main buildings of the farm, and the gradual extension and increasing experience of the owner have enabled him to achieve very considerable results. The greatest care is taken in thoroughly ventilating the incubator rooms, which are somewhat closely packed with machines. Upon that point, however, it is needless to say more, as the system is the one generally recognised as the best.

REARING ON A LARGE SCALE.

Up to this point the work is not very difficult, although it requires great attention, so long as a sufficient supply of eggs is obtained. It is when the young birds make their appearance that the difficulties arise. Mr. Walsh has adopted a system which is certainly distinct from anything seen before. Along one side of the incubator room is built a wide bench, about 30-in. from the floor, and on this bench are fitted L-shaped boards, which when stacked together form compartments about 30in. long by 12in. wide. These boards consist of one long side and a short end, so that they can easily be removed. As soon as the ducklings are dry they are divided into flocks of 50, and accommodated in these compartments for the first week. No heat is applied, but of course in a room where something like 60 lamps are going constantly the atmosphere is fairly warm, and they keep themselves warm also. They are fed three or four times a day, and Mr. Walsh says that the system has been thoroughly successful. At the end of the first week the birds are removed to boxes, which are placed in the open air. These consist of ordinary packing cases about 2ft. square, and the lids being taken away they are laid upon their sides, the openings forming the centre, and the four together leave a square in the centre open to the heavens, and the birds can go into the boxes on all the four sides. Here they are kept for another fortnight and given no heat. At the end of that time they are placed in open runs (Plate XII.), in which are houses or boxes for

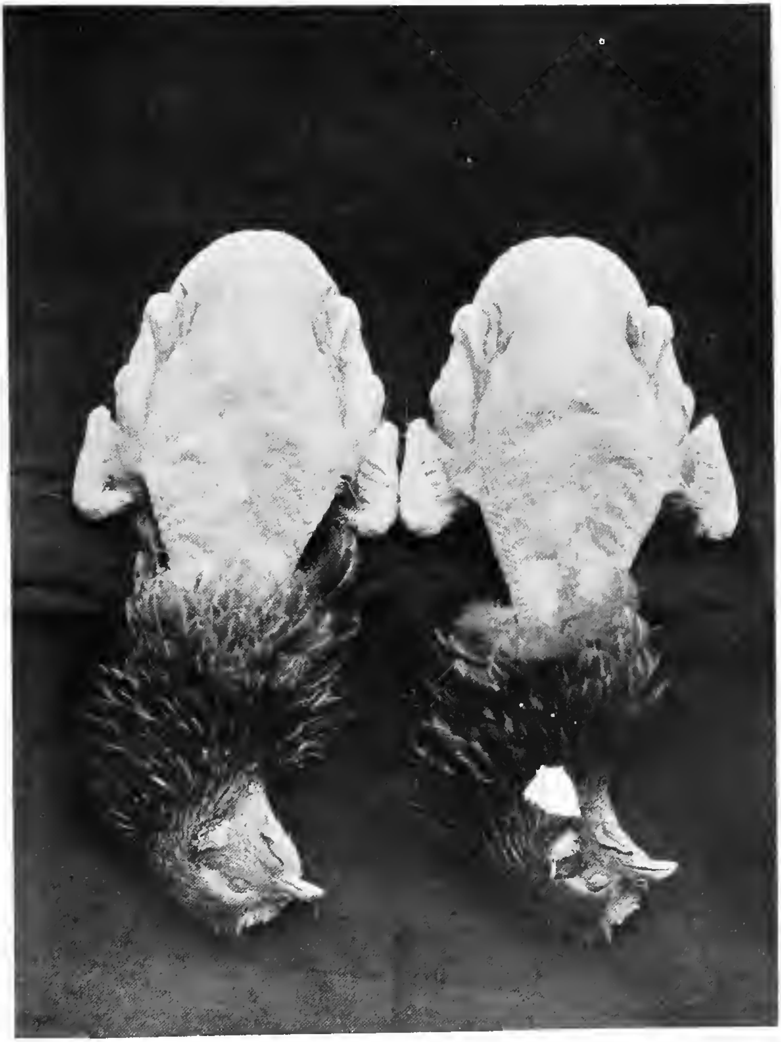

PLATE XII.—BUFF ORPINGTON DEAD FOWLS.

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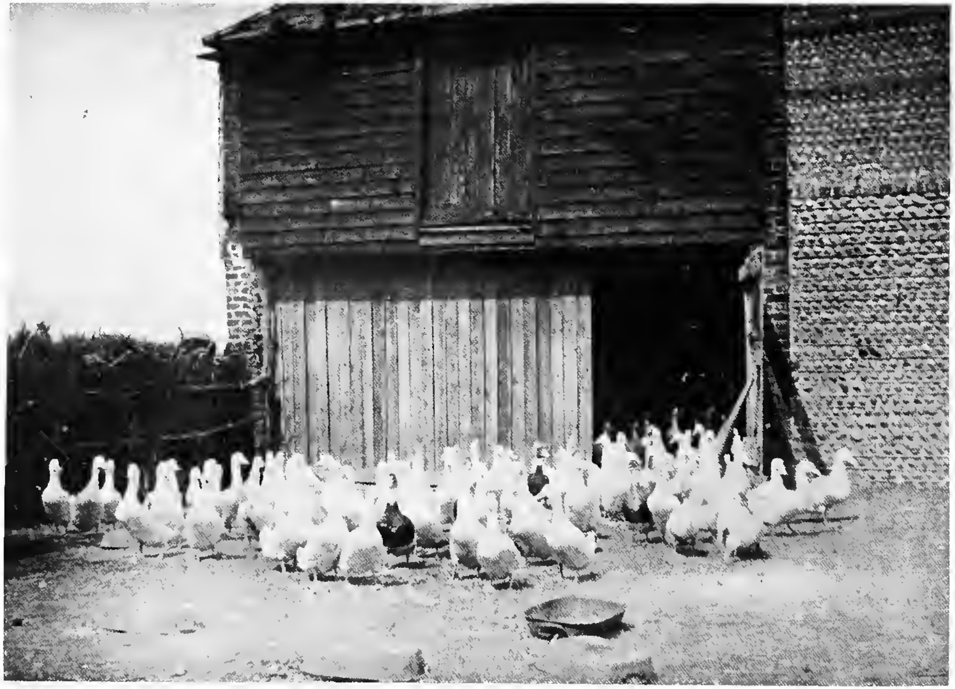

PLATE XIII.—FATTENING-PENS FOR DUCKS.

Facing page 81]

their accommodation, and they remain there until the time comes for killing. The number of these boxes is increased as the birds grow. The surprising part of this system is that during the whole period they are entirely without heat.

AMERICAN METHODS.

In America a very different system is adopted. As shown in the author's "Report on the Poultry Industry in America," published by the National Poultry Organisation Society, at nearly all the duck plants the breeding stock is maintained, and of course the output must depend upon the stock. Artificial methods of hatching and rearing are almost entirely employed, and for the accommodation of the young birds long range houses are used with open yards in front. A great success has been made of this industry in America, but the weakness of the system just referred to is that the houses cannot be removed, and therefore in process of time there is danger of the land becoming tainted. It is unquestionable, in our judgment, that the wiser plan is to have smaller houses which can be removed, and although it remains for further observation to see whether Mr. Walsh's simple method gives the greatest results, at the same time, in so far as it avoids danger of tainted ground by allowing removal on to fresh soil each season, it is greatly to be preferred.

CHAPTER XI.

FATTENING GEESE.

Season of Demand—Geese on Farms—Rearing—Killing and Plucking—Fattening Geese in France.

THE goose industry is one which has been known for several centuries in this country, and the following quotation is taken from "The English Husbandman," by Gervasse Markham, first published in 1615: "Now for the fattening of elder geese, which are those which are five or six months old, you shall understand that after they have in the stubble fields, and during the time of harvest, got into good flesh, you shall then chuse out such Geese as you will feeded, and put them in severall pennes which are close and darke, and there feeded them thrice a day with good store of Oates, or spelted Beanes, and give them to drink water, and Barley-meale mixt together, which must evermore stand before them, this will in three weekes feeded a Goose so fatte as it is needfull."

SEASON OF DEMAND.

As is well known, the goose industry resolves itself into two distinct branches, and the varieties fortunately meet the requirements in this respect—namely, the White or Embden, and the Grey or Toulouse, these being chiefly used, though of course there are frequent crosses between the two. Embdens are much the more rapid in growth, and are consequently, like the Aylesbury in ducks, ready for marketing at an earlier period, the Toulouse not laying on flesh until further advanced. One leading goose-breeder some time ago wrote: "Toulouse goslings grow bone very fast, and, being loose in skin, they soon fill the eye and the exhibition pen, but they are very deceptive weighers when young and raw; even under favourable circumstances many strains of them will not gather flesh and fat until freely matured, when they can be fed to an enormous size and weight, unsurpassed or unequalled by any other variety. They are, therefore, not so well adapted for early maturity, and are seldom fit for the table before Christmas, previous to which they dress very loose and blue in appearance, and are quite out of season as Green or Michaelmas geese. Used, however, as a cross with any other variety of goose, the produce mature and fatten very rapidly."

GEESE ON FARMS.

From this it will be seen how necessary it is to keep in mind the economic qualities of geese, as well as the other branches of live stock. Whilst there are several districts of England where geese are bred to a considerable extent, notably Lincolnshire and Cumberland, and, of course, the same is true of Ireland, whose quantities of this fowl probably exceed the other three kingdoms put together, there can be no doubt that the finest come to us from East Anglia, by which term is embraced the counties of Norfolk, Suffolk, and Cambridgeshire. In these districts many small farmers look to pay their rent from the geese and turkeys raised, but the feeding and management is as a rule left to their wives and daughters. At one time the size was small, geese weighing, when drawn and trussed, 10lb. to 12lb.; size was, however, carried to an extreme, and a reaction has taken place. But the demand for geese has fallen to a considerable extent, and they are not consumed as generally as was the case at one time. Perhaps if smaller specimens were produced for the autumn trade, we should find a much larger sale.

REARING.

Geese are probably amongst the most easy fowls to rear, and if they have passed their first stages will obtain the greater proportion of their food, more especially after harvest, when they are amongst the best gleaners to be found. The method of fattening is a very simple one. They should be put into a good-sized shed littered with straw; this should be in a quiet place, and away from the sound of any birds which are being kept for stock. Unlike turkeys, they should not be allowed to see the outside, though in some cases an open yard is arranged where the birds are fed. They should be put up about four weeks before being killed, as very often they will not begin eating for a week afterwards. They should be fed on soft food in the morning and corn in the afternoon, a large trough of clean water being always at hand, but not so that they can get into it. The soft food may consist of barley-meal, mixed with Indian meal and pollard, and the corn of wheat and barley, which should always be steeped, as that produces much finer flesh. Plenty of grit should always be provided for geese, both old and young.

KILLING AND PLUCKING.

The following quotation as to the method of killing geese, written by Mr. J. S. Rawson, is from the author's work on "Poultry-Keeping as an Industry for Farmers and Cottagers":

"Before killing a goose, it must be kept without food for at least twelve hours, though fifteen to eighteen hours will do no harm; this clears the crop of all food, a very necessary point to be attained. Having fasted a goose for the time required, the next part of the business is to kill it as expeditiously as possible. There are two or three ways of accomplishing this, but the best is by piercing the brain with a knife. Secure the bird's legs with a piece of twine, and then feel for the correct spot at which to insert the knife. At the base of the skull, and at the point where the head is joined to the neck, will be found a hollow place without any bone to protect it; here is the vulnerable point. Now hold up the bird by the legs, and with a stick or short piece of wood give it a smart blow at the back of the head, thereby rendering it unconscious. It must now be laid between the knees, the head being grasped in the left hand, bill down, and neck somewhat bent, so as to get a better chance of finding the base of the skull. This having been done, a sharp-pointed knife is inserted in the hollow place before mentioned, and a quick stab or cut is given. If this is properly done, one of the chief arteries is severed, and the bird quickly bleeds to death; care being taken that in the meantime it is firmly held, and prevented from throwing the blood over its feathers or the clothes of the operator. As to the time for plucking, that is a matter on which opinions differ, some people preferring to do it at once, whilst others aver that it is better policy to let the bird grow quite cold before it is taken in hand. In the former case the feathers will be bound to come out much more readily, and the time occupied in plucking thereby very considerably diminished ; but, on the other hand, the skin and flesh being more tender, greater care is required during the operation to prevent the membrane being torn. The usual plan is to leave the head unplucked, and thus let it act as a signboard to tell the nationality of the bird, whether it be a large duck or a small goose. Great care should be taken of the feathers, and these ought to be separated into three lots, the first containing down only, the second small and fine feathers, and the third division strong quills. The latter may be peeled, and the feathers afterwards mixed with those of the second division."

FATTENING GEESE IN FRANCE.

The following account of the method of fattening geese in France is translated from the work of Madame Millet-Robinet, and will prove interesting to English readers :

" The goose is of all fowls that which fattens the best and most easily. It is not necessary to fatten geese later than in November, because when the breeding season arrives they do not fatten well. One should begin in August. Before actually commencing the process it is necessary to prepare them by good food, so that they may be well fleshed. To do this, on returning from the fields they should be given some cheap grain, such as buckwheat, oats or maize, and make them dabble in water, to which has been added a little ordinary flour or pollard. Growing beetroots prepare them well for fattening, and are an inexpensive food. One then puts the geese into the stubble fields, where they find a sufficient quantity of grain. When they are in good condition it is necessary to confine them, that is to say, to place them in a dark shed, quiet and healthy, and above all deprive them of all diversion.

"If one sells the geese dead, the best plan is to pluck them under the stomach before putting up to fatten, because they dirty their feathers in sleeping on the ground; but if they are to be sold alive, they must not be plucked, as they would be disfigured and reduce their price; in this case double care should be taken to give them a clean litter.

"During the first week of fattening they should have only oats to eat, and have water whitened with flour to drink. This food is supplied in little wooden troughs, narrow and hollow, long enough for the goose to reach from one side to another without difficulty. These troughs are inexpensive, and preferable to the round dishes in which one generally gives food to geese, and around which they scramble, sometimes fighting so as to reach the food before their comrades, which greatly hinders the process of fattening. Feeding over, the troughs are removed, so that the geese may sleep and digest their food.

"Fattening may be completed entirely in this way, and 20 litres of oats per head is sufficient; but it is long, and although it appears less expensive, it is as much so as fattening done with more nutritious food; besides, geese fed only with oats, and 20 litres at a time, do not reach that perfect state of fattening which makes them very plump—one might say, almost incapable of standing upright. After six or seven days' feeding on oats, boiled potatoes should be added, being mixed with the grain and curdled milk; five or six days afterwards a little barleymeal, buckwheat, or maize may be mixed with it, or peas cooked or crushed, boiled radishes, &c., and one may give them to drink curdled milk mixed with pollard. After eighteen or twenty days of this treatment, from the day on which they were confined, they are perfectly fattened, and this method is not costly. If one wishes to make them still more perfect, after feeding, the poultry woman takes the goose beneath her knees and makes it swallow, twice a day, seven or eight pâtons made with meal and potatoes."

CHAPTER XII.

FATTENING TURKEYS AND GUINEA-FOWLS.

Prices of Turkeys at Christmas—Breeds—East Anglian Turkeys—The Rearing Period—Fattening Turkeys—French Systems—Killing Turkeys—Guinea-Fowls.

IN these days size is important in the production of turkeys, though not to the same extent as a few years ago, when huge specimens were in great demand. Whilst there is always a fair sale for smaller birds, this demand is at lower prices, and if we desire to obtain anything like the best rates, we must have well-developed specimens. At the Bishop's Stortford Table Poultry Show, promoted by Sir Walter Gilbey, Bart., held December 21, 1893, a Cambridge turkey was exhibited weighing 33lb. dead, and this sold for £5, rather more than 3s. per lb.—a fancy price, it is true, but indicating the desirability of producing large birds. Moreover, in a London retail poulterer's catalogue some time ago were published the prices of turkeys about Christmas (and we have met with very similar figures in Paris), as follows:—

Turkeys	under 10 lb.	weight	0	10	per lb.
„	10 to 16 „	„	1	3	„
„	16 „ 20 „	„	1	6	„
„	over 20 „	„	1	9	„

Of course, these are the West-End rates, and for the finest specimens. It is necessary to point out that such prices as these could not be expected by the producer, who would probably obtain a regular rate per lb. for all his birds, large or small, the retailer dividing them up, and making the best he possibly can of them. But for good well-grown turkeys 1s. 1d. to 1s. 3d. can be, and frequently is, obtained. If they were small those figures would be considerably reduced. The tendency has been for prices to advance, and turkey-raising is a branch of farming by no means fully developed.

BREEDS.

For some years the Bronze American turkey has come into great favour by reason of its large size, cocks sometimes scaling at 40lb. and upwards. At the same time we do not think they have the quality of, say, the Black Norfolk, which is one of the finest for flavour of any turkey known, but the latter are rather delicate, and hence the greater vigour imparted by the American is a manifest advantage. The Cambridge Bronze appears to be resultant from a cross between the Norfolk and American with the old grey turkey, and it is a large, fleshy bird, good in quality and quantity of flesh, which is very thick and soft. White turkeys, which are found chiefly in Southern Europe, are fine in flavour, but smaller than our native breeds.

EAST ANGLIAN TURKEYS.

East Anglia, as a rule, produces the finest turkeys, and geese also, as was mentioned in our last chapter. In the majority of cases the farmers' wives and daughters look after the poultry, and the work is well done.

THE REARING PERIOD.

The sight afforded in Norfolk of large flocks of both geese and turkeys roaming about on the stubbles after harvest, doing pretty much as they please, is surprising to a stranger, but pleasing withal, as they are usually handsome and healthy-looking. Turkeys will wander a long way from home, and return at night to roost as regularly as can be desired. Many farmers employ a boy to keep them from straying on the road or their neighbours' lands. Thus they obtain the greater part of their own living for about a month after harvest. When the fallen grain becomes scarcer, and the birds are unable to fill themselves, long troughs are provided at home, close to the roosting-place, which are filled with wheat and barley and a little maize. Thus they are ready for the birds when they return.

FATTENING TURKEYS.

This treatment is continued until about the 1st of November, after which time they are fed as soon as liberated in the morning with a good feed of soft food, usually consisting of barley and wheat-meals. When satisfied they wander off to the fields until feeding-time in the afternoon, when they are provided with all the food they care to eat. About November 20th—that is, five weeks before Christmas—begins the final stage of the process. The turkeys are put up to fatten in a dry, comfortable shed, which must be large enough for the number of birds to be accommodated. Then the northern and eastern sides of this shed should be well closed in, but the southern and western sides may be wire-netted or barred, thus affording the inmates plenty of fresh air. Broad perches are provided, and must not be more than three feet above the ground. Food and water are placed in troughs conveniently situated, and away from the perches. When put up to fatten the turkeys are given all the food they will eat. The morning feed consists of barley-meal and wheat-meal, or ground oats. Some farmers who are very particular and have good customers mix the meals with soured skim milk, and give milk to drink instead of water, an inexpensive addition if skim milk is used, and one which considerably improves the flesh. Although not much used, there can be no doubt that the addition of a little pure fat, say, half an ounce per bird per diem, to the soft food is highly beneficial, softening the flesh. Cooked potatoes can also be added to soft food with advantage, which applies to all fowls put up for fattening. The afternoon feed consists of whole barley, oats, and a little maize, with a few peas, and these are more easily digested if steamed or soaked in hot water. When fully satisfied all food should be removed, and the troughs emptied, both morning and evening and washed after the morning meal of soft food, and it is desirable to feed the birds only twice each day. In every case there must be a plentiful supply of cabbages or roots, and of coarse grit and sand available to the fowls, and a little slaked lime or old mortar will be an improvement. Without grit the turkeys cannot possibly digest their food properly, and without effective digestion flesh-production will never be

PLATE XIV.—AMERICAN DUCK PLANT.

Facing page 88]

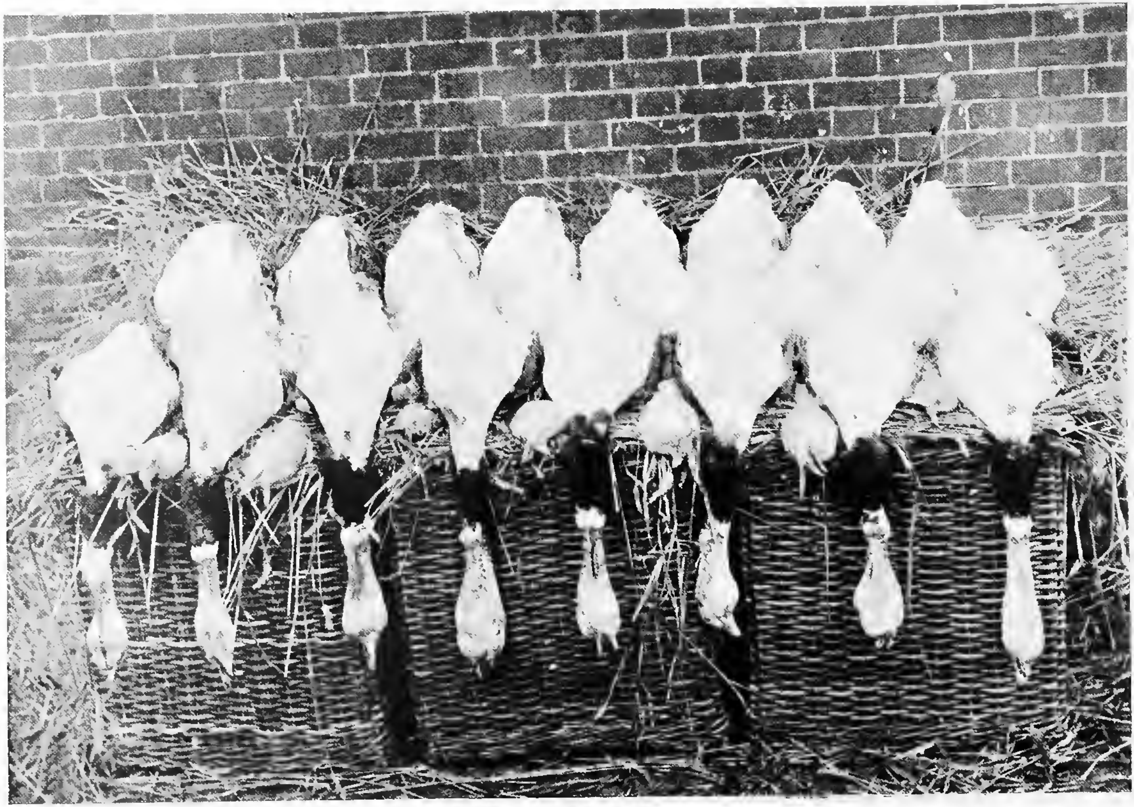

PLATE XV.—East Anglian Turkeys.

Facing page 89.]

complete. Should any of the turkeys fight, the culprit or culprits must be removed. Turkeys can be crammed by machines as are fowls, but that is not necessary.

FRENCH SYSTEMS.

Madame Millet-Robinet, to whom reference has previously been made, thus describes the system of fattening turkeys in France. With all her recommendations we do not agree, but the information is of interest :

" When the young birds become adults, that is to say are from six to seven months old, according to the season, which greatly influences their growth, one may fatten them advantageously. If one has a large flock of them, they should not all be put up to fatten at once, unless one wishes to send them all to market or nearly all together, which can only be done if in the neighbourhood of a large market where one is always able to sell whatever is sent. In all other cases, if one does not intend to send to market, but simply to fatten a few turkeys for private consumption, they should be marked on the foot by a piece of red thread tied round, in order to show those which are to be fattened.

" To indicate the different stages attained, it is necessary to add to the mark on the feet a few marks made with scissors on the feathers of the tail.

" The food to be given to turkeys is not the same during the whole time of fattening.

" During the first stage one must be content with giving them food on their return from the fields, for turkeys will not fatten in captivity ; liberty is essential to them. They should be given waste grains of all kinds, potatoes and beetroots cut in small pieces, beech-nuts, small chestnuts ; a fortnight later they should be given for their evening meal a paste of potatoes cooked and mashed and mixed with some meal. One may dilute this paste with curdled milk, but it is necessary to prepare only the quantity needed for each meal to prevent its turning sour.

" A fortnight after this change in the food, give grain in the morning, which on returning from the fields, should be left off, and replaced by the paste ; during the last eight days, when the turkeys have eaten the paste, they should be made to swallow one or two pellets as an addition, and a pellet is added at every feed, so that at the end of a week the turkey eats, besides what it likes to take itself, eighteen or twenty pellets, which are prepared as follows:

"Dilute unsifted meal with curdled milk; this meal may be barley, wheat, buckwheat, or even maize. To this are added potatoes steamed and mashed. This is formed into a paste, and after being kneaded well with the hands it is made up into pâtons or pellets about as big as a finger. These the turkey is made to swallow, taking care first to moisten them; for if one does not take this precaution they will not pass into the throat; then one gives it some milk.

"To cram several turkeys quickly two persons are necessary; one takes the bird between her knees, holding it in such a manner that it is facing her, and she opens its mouth carefully: the other takes the pâton and places it into the throat, taking care not to raise the tongue of the bird and not to hurt it with her nails. It is necessary to make the pâtons pass into the stomach by pressing gently with the first finger and thumb along the neck of the turkey; and no part of the last pâton must be left in the neck or crop of the bird; this can be told by pressing gently along the neck. As each fowl is crammed it is placed in a little run, so that there can be no mistake and no turkey can be crammed twice.

"After the last week, that is to say, after four or five weeks' fattening, turkeys should be perfectly fat."

KILLING TURKEYS.

The method of killing turkeys in Norfolk is, they are hung up by the legs, the wings being crossed to prevent struggling. Next they are given a sharp blow on the back of the head with a stout piece of wood, thus rendering them insensible. The knife is then inserted through the roof of the mouth, so as to pierce the brain. The majority are roughly plucked, all except the head, neck, and pinions. It is important to remember starving for twenty-four hours before the birds are killed. Birds should be fully chilled before they are dispatched, and great care is desirable in packing. Wrapping in linen cloths dipped in skim milk greatly improves the appearance. (See Plate XV.).

GUINEA-FOWLS.

After the game season is over, in the early part of the year, there is a fair demand for guinea-fowls, or Gallinas as they are often called, and at good prices, though their flesh is somewhat dry as compared with other poultry. They are a little difficult to deal with, and often pine if kept in confinement too closely. The best method of feeding up is to deal liberally with them during the winter, using oats and maize mixed, and then they will be in good condition. If a large, roomy shed is available they may be kept therein for a couple of weeks before killing, and fed upon oats. They are, as a rule, killed by paletting, and the breasts should not be plucked.

CHAPTER XIII.

MARKETING TABLE POULTRY.

Organisation of the Trade—The Middleman and His Place—What is Required—Trade Centres—When in Demand—Singeing—Packing—Chilling and Grading—Tinned Chicken—Dressing and Trussing.

It would be of no service producing any article of commerce unless we can place it where the natural return for our skill and labour is obtainable. Thus in every branch of industrialism, whether agricultural or manufacturing, the question of marketing is of great importance. We are inclined to the opinion that many of the troubles which affect rural pursuits are largely due to a lack of attention to this question. It has been pointed out previously that in this country we have been content largely to run on lines which, however suitable to the conditions of a generation or two or ago, are altogether unfitted to the circumstances of these times. And in this connection it must be borne in mind that foreign producers have learnt the necessity and value of proper organisation. Isolation is fatal to success in any industry where production is widely divided. Many instances could be cited in proof of this statement, but the fact is so obvious as to make it at once accepted. Wherever poultry-keeping is a success, whether in relation to eggs or table poultry, some system has been adopted by which they are forwarded regularly and speedily to the point of distribution. Before the railway opened out the Heathfield district of Sussex carriers were employed, who landed the birds in London early on the morning after dispatch, and the quantity carried by them was enormous. That system yet prevails in Bucks and in Belgium. Since the railway was available the work has been undertaken by it, and so great is the traffic that, as we have shown, the London, Brighton and South Coast Railway Company conveyed about 1,500 tons of dead fowls from the Heathfield Station alone in twelve months. Without such arrangements it would have been impossible for the fattening industry to have increased as it has done, and the opportunity thus afforded has had a great influence in its development.

THE MIDDLEMAN AND HIS PLACE.

Of course the ideal would be in all industries that producers and consumers should come into direct and immediate contact, and in former days this was largely the case. But with the growth of great centres of population, and intercommunication between all parts of the country, that could only continue to a limited extent. Wherever possible, which might be so to a greater extent than is generally supposed, direct sales should be made, to which end markets should be encouraged. But however much we may declaim against the middleman, he is a necessary factor, and so long as kept in his right position, that is, an intermediary between one class and another, and not a dominator, he serves a most useful purpose, earning well the commission allowed him and saving more than his cost. But if the result is at once to depreciate the return obtained by producers and enhance the cost to consumers unduly, then we have a serious state of things. In practice we know that better prices can be obtained from salesmen and dealers than others, more especially by those who have good produce to sell. Complaints are chiefly rife amongst those who send forward mediocre or poor qualities of any produce. We are bound, therefore, to recognise that it is to " the trade " we must look for help in this direction, and it is to the interest of that body to help forward a movement in the success of which they are so keenly interested.

WHAT IS REQUIRED?

Varied systems of marketing are to be met with in different parts of the country, and it is desirable to recognise this fact. Of course, where fattening establishments are in operation, and nearly all the fowls of the district pass through them, the owners understand what is needed, and prepare the fowls in accordance with market requirements. This gives them a decided advantage, as purchasers get what they want, and in the form which suits them best. We do not suggest that improvement should not be attempted; that would be folly. But advance should be on lines that will propitiate rather than offend prejudice, and it is well to note that it is not so much what we like, but what our ultimate customers prefer and for which they are willing to pay. We are firmly convinced that whilst keeping the right breeds or crosses of poultry and proper fattening of the fowls are the first points to be kept in view, so that we may improve our home table poultry of all kinds, equally necessary is it that the birds shall be killed by the fattener, plucked, and sent to market dead. In every business economy of labour and trouble is most desirable; and if we take the case of a retail poulterer, it would add greatly to his work if fowls were brought to him alive. When he can secure them killed, plucked, and shaped, they not only look better, but are better, and he has only the labour of dressing them in accordance with the needs of his customers. How desirable proper shaping is has already been shown in a previous chapter, and it is not too much to say that inattention on this point will go far towards destroying all that may be done in other directions.

TRADE CENTRES.

It would be impossible to give descriptions of all the various ways in which poultry are marketed, but as representing different districts we have obtained the following particulars from provincial dealers. In the Metropolitan markets fowls must be sent dead and plucked to Smithfield or Leadenhall. The best prices are commanded by properly shaped Surrey birds, and either this or what is known as the Devonshire fashion is essential. There is a good demand in London all the year round, but, of course, prices vary considerably.

Birmingham: (1) Chickens should be killed by breaking the neck, sent unplucked, packed in baskets with straw between each layer; (2) There is a good demand for young, well-fed poultry all the year round, the best prices being obtained in the spring; (3) Fatted poultry not much in favour.

Cardiff: (1) The fowls should be simply killed, plucked, and roped; (2) Most in demand during the autumn; (3) Fatted fowls not in demand.

Cork: (1) Chickens not shaped, but are plucked, though some feathers are left on sides and tail; (2) January to June best season; (3) For general sale the birds are marketed as they come off the farm or run, not fatted.

Leeds: (1) The trade varies here. Birds must be killed by cutting the throat or bled in any other manner, and either simply plucked and clean picked, or shaped; (2) Chief demand from March onwards; (3) Fatted fowls are preferred if reasonable in price.

Leicester: (1) Chickens should be simply killed and plucked; (2) March to July best season; (3) Fatted fowls are only in limited demand.

Manchester: (1) Young fowls are preferred, Surrey shaped for best trade, and command good prices; (2) March to August chief season, the high prices of "Surrey" chickens from November to February limiting demand; (3) Fatted fowls preferred.

Newcastle-on-Tyne: (1) Fowls are marketed killed, and roughly plucked; (2) Sell best when game is not in season; (3) Fatted fowls scarcely known.

Norwich: (1) On this market all fowls must be nicely plucked but are not shaped; (2) A few early spring chickens are sold in April, May, and June, but most demand in the late autumn, after veal and lamb season is over, and all through the winter; (3) Although a great number of fowls are killed without any preparation, well-fatted fowls are certainly preferred.

We do not give the above in order to discourage attempts at improvement, but to show what is the state of things at the present time. The public taste can be educated, and though there might be some difficulty at first, the introduction of fatted and shaped fowls would ultimately exert an influence. Poultry producers should study their local markets, and wherever there are holiday resorts available, advantage should be taken to meet the special demand, which is generally a good one, though limited in respect to time. At such places there is nearly always a good market for summer ducks.

WHEN IN DEMAND.

The time of year when poultry is marketed is an essential consideration. Again and again when complaints have been made as to the small prices received for chickens has it been found that no thought had been given to the ruling rates at different periods of the year. Chickens are worth as a rule about twice as much in April as in August, and in this connection it is necessary to bear in mind that when the game comes in down go the prices for fowls. Ducklings should be marketed from January to June, and the difference between spring and summer prices for these succulent dainties is even greater than in the case of chickens. Geese and turkeys, of course, come into demand in the autumn, the top prices being realised about Christmas, and Guinea-fowls in February and March. To meet these requirements it is requisite to pay attention as to periods for breeding, but the successful man in every branch of life must study such questions in relation to marketing opportunities, and be prepared to live mentally months in advance.

SINGEING.

As a rule fowls are plucked as soon as they are killed, and the feathers come out much more easily than would be the case later on. In Sussex nearly all the chickens are singed, the object being to get rid of the small hairs which cannot be plucked out. When properly done there can be no doubt that a fowl is considerably improved thereby, but care must be taken not to burn or blacken the flesh, or, in fact, to leave any signs of the operation. Good wheat straw is found to be the best for singeing.

PACKING.

The packing of poultry is where much harm may be done if not properly carried out. We have seen crates of chickens opened, and their value was materially reduced because of bad packing, many of the birds being "barked" or otherwise damaged. They ought to be packed firmly and evenly, and in this way will carry long distances in perfect safety. In this country what are called "peds," or strong willow baskets, are usually employed, well lined out with straw, and with an abundance of straw beneath each row and on top. The birds are placed with the sterns to the sides, and in double rows. In France a firm crate, made of wood with straight rods fitted into a strong wooden frame, is employed, and these are at once light in weight and yet strong. They are well lined out with straight straw, but in nearly all cases each bird is wrapped in a fine linen cloth, and this does much to keep them from injury. We have seen cloths used here, and for the better class of fowls their use might with advantage be increased. During warm weather in France ice is largely used in packing, but that is seldom necessary in this country.

CHILLING AND GRADING.

The following notes respecting the grading of poultry are taken from Leaflet No. 201, issued by the Board of Agriculture:—

"A most essential point is that all poultry should be quite cold before they are dispatched. On large plants a chilling chamber is found most useful, but in the absence of this they should be allowed to remain for some hours in a cool room, until the body heat is entirely gone.

"The question of the grading of poultry is also of great importance. It is very desirable that only birds of about the same size should be packed together, but if those of different sizes must be placed in the same package they should be arranged in layers, and the fact that they are so packed should be stated when advising buyer of dispatch. The sizes may be 3 to 3½lb., 3½ to 4lb., 4 to 4½lb., and 4½ to 5lb. It is advisable that separate peds baskets or boxes should be used for different sizes, each box being marked with a distinctive brand and clearly showing the number and size of the birds."

TINNED CHICKEN.

An industry has within the last twenty years sprung up at Bourg, in the Bresse district of France. This is the tinning of fowls, and is due to M. Dupont, a large poultry dealer in that city. The tins are oval and made in different sizes, some containing a quarter of a fowl, sold at about 1s.; a half fowl, sold at about 2s.; and a whole fowl, sold at 4s., these being small-sized birds. Larger specimens are sold at 6 to 8 francs each. The birds are clean plucked, head and feet cut off, and dressed properly. They are then placed into a copper and boiled until nearly cooked, after which they are put into tins and covered with a very clear jelly, which is chiefly extracted from calves' feet. This hardens in about twenty-five minutes. The tins are next carefully soldered or sealed, and again cooked, this time in a copper or boiler, called an "autoclaire," in order to kill any germs. The fowls are ready for use on opening, and can be eaten either cold or heated. The flavour of these birds is excellent, and when taken out of the tin are embedded in their own jelly. We understand that in 1893, which was the first year that this industry was carried on, M. Dupont sold about 10,000 tins, whereas he has since sold about 30,000, sending them to all parts of Europe and America. There would seem to be an idea in this, and we commend it to those who are interested in the poultry question. Of course it may be assumed that M. Dupont tins the fowls at the time of year when they are lowest in price, and naturally does not put up the most expensive specimens in this way, but there can be no doubt as to the quality of the birds sent out.

DRESSING AND TRUSSING.

Whilst it is true that the dressing and trussing of fowls is poulterers' work, and that whenever fowls are sold through the trade it is better left in their hands, as they can thus meet immediate demands, a work like this would be incomplete without some description of the methods adopted. Where chickens are sold direct to consumers it may be essential that they be trussed. Cooks as a rule, however, are equal to the work, or ought to be, for the preparation of fowls by poulterers in some cases has obviated the need for a cook knowing more than how to boil or roast. It is somewhat difficult to describe operations like these, but the following is an attempt in that direction:—

For Roasting. Presuming that the chicken has been properly plucked, (1) nick the skin of each leg through to the bone, just below the joint; (2) trim the pinions, cutting off the skin on the outer side, so as to remove all marks of feather pits; (3) lay chicken on its breast, with stern towards operator, and head away from the body; (4) make a transverse cut in skin of neck about two inches from back, and lay skin thus loosened backwards, exposing vertebræ ; (5) cut off neck and head about two inches in front of previous cut, thus leaving about two inches of neck skin; (6) now turn bird round sideways, breast upwards, and laying back the neck skin to expose the front of breast; (7) press the thumb firmly down the Λ-shaped orifice thus exposed, loosen the skin, and insert finger into body to detach internal organs from frame ; (8) carefully cut out merry-thought ; (9) turn bird round in the hand, make a transverse cut across the vent, immediately below the "parson's nose," and an angular cut at each side, which prevents the sides cracking when the bird is being drawn; (10) insert forefinger and find "trail," which cut off, loosen the intestines gently but firmly, and draw through vent, holding the gizzard between two fingers, taking care not to break any organ ; (11) now place chicken on the table breast upwards, and insert long needle between thigh behind leg joint, pressing to corresponding place on other side, using fine string, and drawing through; (12) lay fowl over on table, and insert needle in first joint of wing, and between bones of middle joint, draw through and pass string over back, repeating on reverse side, here pull tight and tie up ; (13) insert needle through body at end of backbone, and at fore-end of breast-bone, but in neither case is it necessary to pierce the meat on breast ; (14) carry string round legs and tie, the legs standing away from behind the body ; (15) chop off the toes ; and (16) when the fowl is smoothed over by the hands it is complete.

For Boiling. With the exception that it is unnecessary to cut the legs, (1) proceed exactly as described for roasting to 10; (11) insert first and second fingers of one hand through vent, and loosen the skin on thigh up to hock on both legs. This is an easy operation, only needing a little care to prevent tearing the skin; (12) make a cut through skin on inside of each leg about an inch above hock knuckle, and right to bone; (13) also cut to bone of foot immediately above top toe; (14) take chicken in hand, turn lower leg, or shank, under thigh, feel with finger inserted under skin for cut in leg, and draw leg under skin, repeating this process on other side. The feet only will now protrude, and they should be cut off; (15) insert needle through front of body and stitch wings as in roasting (11 and 12) chicken, but the wings may be shortened and inserted under skin as are the legs; (16) pass needle through thighs behind, and tie up on back in front of stern.

Boning Fowls is a much more difficult process, and takes longer to perform, but when skilfully done leaves the meat unbroken or torn. The bird is treated as for roasting 1 to 5, but is not drawn, the organs remaining in carcass; (6) after cutting the neck, cut out the crop and merry-thought; (7) begin to strip the flesh off downward from neck, glove fashion, until wings are reached; (8) cut wing-bone through, just above second joint, and break it off; (9) turn bone backwards through the flesh, scrape it down as it proceeds, drawing it out completely, removing any splinters, repeating on other side; (10) resume stripping the flesh from carcass, holding upwards, until legs are reached; (11) these must in turn be turned inwards; (12) cut bone at joint, and scrape with knife, until bones can be removed; (13) continue stripping until scallop is reached, when it must be cut, and the carcass comes out complete; (14) the breast fillets must now be cut out carefully, and entirely off the keel or breast-bone; (15) take fowl by legs and turn right way out, placing fillets within; (16) roll up, and it is ready for use in whatever form desired.

In all these operations cleanliness of the board and constant wiping, as required, of the parts are most desirable.

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INDEX.

Accommodation for Ducklings, 76
Adult Fowls, 50
Advantages of Separate Rearing, 25
Age for Killing Ducklings, 78
Age of Breeding Ducks, 76
American Duck Plants, 81
American Table-Poultry, 58
Amount of Trade, 6
An Industry for Small Holders, 75
Antiquity of Fattening, 1
Artificial Hatching, 26, 79
,, Rearing, 28
Australia, Fattening in, 59
Austria, Fattening in, 4, 56
Autumn Fowls Naturally Fat, 2
Average Values, 7
Aylesbury District, 74
Aylesbury Duck, 75

Barley Meal, 39
Bedfordshire, Ducks in, 75
Belgium, Fattening in, 4, 54
Better Prices, 9
Birmingham, 93
Boiling, Trussing for, 98
Bone, Weight of, 13
Boneing Fowls, 99
Breaking the Breastbone, 66
Breeds and Crosses, 11
,, for Milk Chickens, 68
,, of Turkeys, 87
,, Qualities of, 14
Bresse and the Poultry Industry, 48
,, Cages, 36
,, Fattening, 25
,, Fowls, 18
,, Shaping, 65
Broilers, Squab, 66
Brooder Houses, 28
Brooders, 39
Broody Hens, 26
Brooke, Bros., 6
,, Mr. C. E., 43
Buckinghamshire, Duckers in, 74
Buckwheat Meal, 39
Buttermilk, 39, 56
Buying from Rearers, 38

Cages, 32, 34, 36
Canada, Fattening in, 4, 58
Canadian Department of Agriculture, 58
Capons and Poulardes, 49
Cardiff, 94
Chicken Houses, 28
,, Rearing, 27
Chickens, Young, 50
Chilling Poultry, 96
Choice of Breed, 11
Christmas Turkeys, 86
Cleanliness, 32
Cold Storage, 46
Collection of Birds, 24
Colour of Flesh and Skin, 12
,, Legs, 12
Competition in Feeding, 34
Concentration of Labour, 45
Conditions for Fattening, 32
Consistency of Food, 39
Consult the Markets, 10
Cork, 94
Cost of Feeding, 40, 44
Cramming, 41, 50
Cramming, by Machine, 52
,, by Funnel, 51
,, by Mouth, 52
,, in Egypt, 1
,, Machines, 41
,, Methods of, 42
,, Turkeys, 89
Crevecœur Fowls, 19
Crops, Feeling the, 34
Crosses for Meat, 21
Cruel, Is Cramming, 41

Day-old Chickens, 30
Dead Poultry for Market, 92
Demand, Extension of, 3
,, for Geese, 82
Development of the Industry, 10
Devereaux, Mr., 70
Diseases of Ducklings, 78
Dislocation of the Neck, 60
Dorking Fowls, 6, 15
Dressing Poultry, 97
Dry Feeding of Chickens, 29
Duck Eggs for Hatching, 75
,, Farming, 79
Duckers in Buckinghamshire, &c., 74
Ducklings, Rearing, 76
Duckling Season, 75
Ducks, Fattening, 74

East Anglia, Ducks in, 79
,, Geese in, 83
Education of Consumers, 41
Effect of Soured Milk, 39
Eggs for Hatching, 26
Egypt, Cramming in, 1
Embden Geese, 82
England, Poultry Fattening in, 37
Examples of Shedding, 35
Export to Germany, Belgian, 56
Extension of Industry, 4, 45
Extent of Trade in Milk Chickens, 70

Factors in Fattening, 31
Farmers and Rearing, 45
Fat, Reserves of, 2
,, Use of, 39
Fattening a Separate Industry, 24
,, Adult Chickens, 50
,, Antiquity of, 1
,, Ducks, 74
,, Fowls in France, 46
,, Geese, 81
,, Guinea Fowl, 86
,, in France, 25
,, Not Separate in France, 48
,, Results of, 3
,, Turkeys, 86
Faverolle and Buff Orpington Cross, 23
Faverolle Fowls, 19
Feathers, 84
Feeding, 34, 50, 53, 56, 57, 59
,, Chickens, 28
,, Ducklings, 77
,, Milk Chickens, 69
,, off Poultry, 2
,, Turkeys, 87
,, Troughs, 33
Fermentation in Food, 39
First Day in Cages, 34
,, Quality Breeds, 14
Flesh, Colour of, 12

"The Illustrated Poultry Record" is indispensable to every Poultry-Keeper.

Flesh, Hard in the Spring, 2
Food for Fattening, 38
,, ,, Geese, 83
Foods Used in France, 50
France, Fattening in, 10
,, Fattening Geese in, 84
,, Fattening Turkeys in, 89
French Fattening Sheds, 36
,, Methods, 25
,, Shaping, 64
,, Table Poultry, 18
,, Women, Skill of, 48
Frozen Poultry, 57
Full Crops, 34
Funnel Feeding, 50

Gain in Weights by Fattening, 43
Game Fowls, 17
Geese, Fattening, 81
,, on Farms, 82
,, Size of, 83
Grades in France, 50
Grading Poultry, 96
Grey or Greyish-White Fleshed Races, 12
Ground Oats the Staple Food, 38
Guinea Fowls, 90
,, Fowls, Fattening, 86

Half-fatted Chickens, 40
Hand Cramming, 51
Hatching and Rearing, 24
,, Duck Eggs for, 76
Hearson Crammer, 42
Heating Brooder Houses, 29
Higglers, 25, 38
Hopper Feeding, 59
Houdan Fowls, 19
Hungary, Fattening in, 57

Incubators, 26
Indian Game Fowls, 16
,, and Dorking Cross, 22
,, and Faverolle Cross, 23
,, and Houdan Cross, 23
,, and Orpington Cross, 23
Indian Meal, 39
Influence of Fattening Establishments, 9
Instruments for Caponising, 50
In the Bresse District, 48
Ireland, Fattening in, 4
Irish Lean Birds, 45
Is Cramming Cruel? 41

Journal of the Board of Agriculture, 67

Killing, 60, 78, 83, 90
La Flèche Fowls, 18
,, Shaping of, 64
Langshan Fowls, 20
Lean Birds Unprofitable, 2
Leeds, 94
Legs, Colour of, 12
Leicester, 94
Liverpool, Fattening at, 4
Location of Outside Cages, 33
London, Brighton and South Coast Ry. Co., 8
London, Demand in, 4
,, Markets, 9, 93
Louhans (Saone-et-Loire), 48
Loss of Weight, 34
£ s. d. of Fattening, 3

Maize Feeding, 39
Malines Fowls, 20
Manchester, 94
Markham, Gervasse, on Geese, 81
Market Demands, 4
Markets for Best Qualities, 3
Marketing, 90
Meal Always Fed, 39
Mean Values, 7
Meat, Crosses for, 21
Methods of Cramming, 42
,, of Feeding, 50
,, of Shaping, 62
Middleman and His Place, 92
Milk Chickens, 66
,, for Turkeys, 88
,, in Fattening, 39
Millet-Robinet, Madame, 89
Mixtures for Feeding, 39
Modern Game Fowls, 17

Neve Crammer, 42
Newcastle-on-Tyne, 94
No Cramming in Belgium, 55
North Lancashire, Ducks in, 79
Norwich, 94
Number of Fowls, 8

Objectionable Methods of Killing, 61
Objections to Fattening, 10
Old English Game Fowls, 17
,, ,, ,, and Dorking Cross, 23
,, ,, ,, and Orpington Cross, 23
Open-air Caging, 31
Opportunities Elsewhere, 6
Organisation in the Trade, 91
Orpington Fowls, 17
Oxfordshire, Ducks in, 75

Packing Milk Chickens, 71
,, Poultry, 95
Paletting, 61
Parents, Influence of, 22
Patons, 50
"Peds" for Packing, 95
Petits Poussins, 50, 66
Pipe-brooder Houses, 29
Places for Incubators, 27
Plucking, 44, 61, 84, 90
Plymouth Rock Fowls, 20
Poulardes, Capons, and, 49
Poulets de Lait, 66
Poultry Fattening in England, 37
Preparation of Food, 39
Preparation of Milk Chickens, 71
Prices for Ducklings, 76, 78
Prices of Duck Eggs, 76
,, for Turkeys, 86
,, in France, 48
,, of Fattened Fowls, 3
Production of Milk Chickens, 67
Profit on ,, ,, 72
Provence, Fattening Turkeys in, 89

Qualities of Breeds, 14
Quality of Sussex Fowls, 37
Quietness Essential, 55

Railway Traffic, 8
Rankin, Mr. James, 73
Rearing Chickens, 27, 44
,, Ducklings, 76, 80
,, Geese, 83
,, Milk Chickens, 69
,, Squab-Broilers, 73
,, Turkeys, 87

"The Illustrated Poultry Record" is indispensable to every Poultry-Keeper.

Regularity of Supply, 38
Regular Supply Required, 2
Report on the Poultry Industry in Belgium, 56
,, ,, Denmark and Sweden, 57
Results of Fattening, 3
Rew, Mr. R. H., Report by, 5, 37
Rice for Ducklings, 77
Roasting, Trussing for, 97
Robinson, Mr. John H, 72
Royal Commission on Agriculture, 75
Russia, Fattening in, 4, 57

Salesmen, 92
Scarcity of Broody Hens, 26
Season of Demand for Geese, 82
Second Quality Breeds, 14
Shaping Poultry, 60
Shape and Size of Body, 13
Shaping Troughs, 62
Sheds and Pens, 31
,, for Turkeys, 88
,, in Belgium, 54
Shelter for Cages, 33
Shortage of Birds, 37
Singeing Poultry, 66, 95
Single Compartment Cages, 33
Sitting Hens, 26
Size of Body, 13
,, of Cages, 32
,, of Duck Runs, 75
,, of Geese, 83
,, of Squab-Broilers, 72
Small Holders, Industry for, 75
Small Occupations in France, 46
Soft Bill in Ducklings, 78
,, Food Fat Producing, 39
,, ,, for Chickens, 30
Softness of Flesh, 40
Soil for Chicken Rearing, 11
,, in Sussex, 37
Solomon, Days of, 1
Soured Skim Milk, 39
South-Eastern England, 45
,, ,, and Chatham Ry. Co., 8
South Africa, Demand in, 59
,, Shore Roasters, 58
Spencer, Mr. Aubrey, 75
Squab-Broilers, 66, 70
Stacking of Cages Undesirable, 33
Starving before Killing, 62
Structure of Body, 11
Stubble Feeding, 87
Stubbing Fowls, 65
Styrian Poulardes, 56
Supply of Suitable Birds, 4
Sussex, &c., 5
,, Fattening, 37
,, Fowls, 16
Szabadka, 57

Table-Poultry in France, 48
Tablets in Pyramids, 1
Tainted Soil, 45
Times of Feeding, 34
Tinned Chickens, 96
Toulouse Geese, 82
Trade, Amount of, 6
Trade Centres, 93
Traders, 92
Trough Feeding, 39
Troughs for Feeding, 33
Trussing Geese, 84
Trussing Poultry, 97
Turkeys, Fattening, 86

Use of Outside Cages, 34
,, of Sheds, 31
United States, Fattening in the, 4, 58

Value of Trade, 6
Van Schelle, Madame, 67
Vigour as a Result of Crossing, 21

Walsh, Mr. Peter, 79
Water for Ducklings, 77
Weight of Bone, 13
Weights Attained, 43
,, of Cross-bred Chickens, 23
,, of Milk Chickens, 67
What is Needed, 10
When Poultry in Demand, 95
White Flesh Preferred, 12
White-Fleshed Races, 12
Why Fatteners do not Rear, 44
Wings, Influence of, 13
Winter Fowls, 50
Women as Pluckers, 44
Women's Work, 46
Wyandotte Fowls, 21

Yard Fattening 58
Yellow Flesh in America, 58
Yellow or Cream-Fleshed Races, 12
Young, Arthur, 37

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